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The Oil Man's Calendar

APRIL 9-10	American Petroleum Institute, Eastern District, Pittsburgh.
16-17	National Petroleum Association, Cleveland, Ohio.
21-23	Southwestern Gas Measurement Short Course, Norman, Okla.
21-24	American Association of Petroleum Geologists, Denver, Colorado.
22-24	Petroleum Industry Electrical Association, Shreveport, La.
MAY 13-15	Natural Gasoline Association, Mayo Hotel, Tulsa. A.P.I. Mid-Year Meeting Canceled.
JUNE 6	American Petroleum Institute, Illinois Basin Chapter, Robinson, Illinois.
6	Illinois-Indiana Petroleum Association, Robinson, Illinois.
OCT. 8-10	Texas Mid-Continent Oil & Gas Association, Dallas.
NOV. 9-13	American Petroleum Institute, Chicago.

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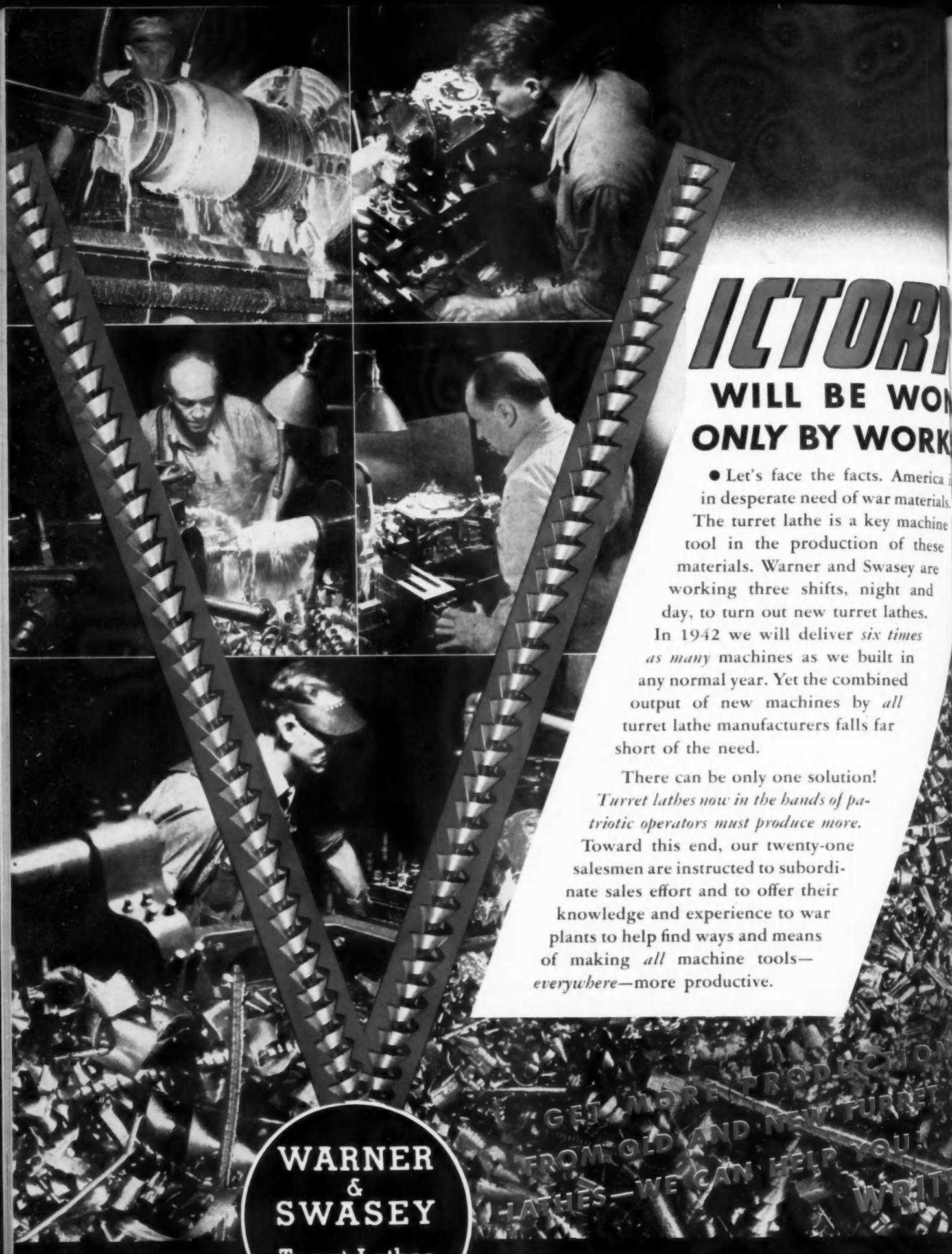

ICTORY

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The Changing Panorama

O'Mahoney Grinding A Political Axe

WE have read the newspaper accounts of the Senate hearing in Washington relating to synthetic rubber, in which Wm. S. Farish of Standard Oil Company of New Jersey has been assailed by Senator O'Mahoney; we have read the complete statement of Farish which newspapers in many sections did not carry, and we have read the report of our own Washington staff correspondent on the subject. We have read all of these and frankly we have not been able to see where Senator O'Mahoney gets any basis for his allegations that Standard has been engaged in any traitorous dealings with the enemy.

It happened that THE OIL WEEKLY staff was familiar before the hearing with a few of the details by which Standard of New Jersey acquired the German synthetic rubber patents and it seemed to us even then that the United States is profiting and stands to profit more, from the purchase of the patent rights by Standard.

In considering what is happening in Washington it is well to remember that Senator O'Mahoney is grinding assiduously a political axe. He makes great capital out of his allegations that the Standard did not acquaint the Navy with all of the details of its synthetic rubber processes. He does not deny that the Standard did have correspondence with the Navy on the subject of the Standard's processes. The question arises in our minds as to just how far a company can go from a practical standpoint in acquainting the government with all of the details of its trade secrets. Not that we object to acquainting the government with such information—but how does one go about it? If the government has been advised, in one way or another, with a process and of what it will do, just *where* does the company begin and *how* does it begin giving greater detail than the government indicates it might want?

Industry is being required these days to give up many equities which it formerly considered sacred, and with this theory, in time of war, we are in accord. As we have remarked many times before, our equities seem puny indeed when balanced against the blood and life of our sons and brothers.

But we are not in accord with the theory that it is right to besmirch the reputation of a company or an individual just because the besmircher wears a senatorial toga. Nor are we in accord with the theory that only industry should make sacrifices.

We have known Wm. S. Farish for a long time, and while we have in personal talks with him, and in written editorials, deplored what we have expressed as a lack of understanding in the matter of public relations, we know him well enough to be sure that he is imbued with as deep a sense of patriotism as any member of the United States Senate, and we know, too, that his sense of private and public honesty is as high as that of any American citizen who can be named by O'Mahoney or any one else. Farish does not need our word in his behalf, nor is this intended as such a word. It is intended as a protest against United States senators attempting to make political capital out of things which they either do not or will not understand—a protest against making a stepping stone out of reputations of which they could well be envious.

• • • *It now becomes quite evident that the long steady sessions of the various committees attempting to ease the East Coast transportation mess have paid dividends in the form of swaps, sales and pipe line hookup rearrangements. Shortly more oil will be moving northward from Texas enroute via pipe line to the Atlantic Coast, the past week having seen the consumation of several deals of this nature. They will help relieve the shortage in the New England region, the surplus storage situation in the Gulf Coast, and aid the crude oil producer. Practically all can be attributed to the untiring work of these pipe line committees. Additional cooperative action of this nature may be anticipated, for a number of similar moves still are being studied.*

East Coast Shortage Largely Overcome

REROUTING of the industry's transportation facilities, plans for which were outlined by Coordinator Ickes last week, should go a long ways toward averting an acute shortage of petroleum products on the East Coast, although the supply there still will not be too plentiful.

Tank cars throughout the country are to be placed in a common pool regardless of ownership so all may be used to the greatest efficiency in shipping petroleum to the Atlantic Seaboard states, several pipe lines probably will be reversed, and barges are to concentrate in moving oil to the East rather than following their normal routes. Given time, such moves should materially increase the movement of petroleum to the heavily industrialized East Coast now largely engaged in the manufacture of implements of war.

The action means that tank cars formerly used for short hauls throughout the country will now be transferred to East Coast shipping duties. From a peak of 14,453 tank cars moving 464,561 barrels daily to the Eastern area last week, oil movement by this method should increase materially.

Likewise, the reversal of pipe line flow, although the switch necessarily will be much slower than in the case of tank cars, will be extremely helpful in several instances. Already one carrier is in process of reversal, the Keystone line from lake ports of Buffalo and Rochester to Philadelphia and Pittsburgh. This will enable it to pump petroleum from lake ports to the East. The Tuscarora gasoline from New Jersey to western Pennsylvania, and the Susquehanna line carrying gasoline from Philadelphia to Cleveland and Syracuse, may also be reversed. These lines, with a combined capacity of approximately 60,000 barrels daily, could go a long ways toward eliminating the bottleneck now existing across Pennsylvania. Other instances of reversal probably are to

come in the Mid-Continent region, which action could reduce the distance necessary to depend upon tank cars and there is likely to be minor construction connecting carrier systems from the Mid-Continent with existing systems in the East.

Barges plying along the Mississippi River and its tributaries are now to concentrate on moving oil to the East Coast, which means that most of them will be in service between New Orleans and Pittsburgh instead of making numerous short hauls. Construction of a pipe line from East Texas to some point on the Mississippi River could materially lessen the distance many barges traverse, and because of their slow movement this would be extremely helpful. Pipe may be procured by taking up idle carriers in the Mid-Continent.

Scarcity May Spread To Interior Areas

WHILE it appears that switching of the industry's transportation facilities will to a large measure overcome the problem of supplying the East Coast with petroleum, the shifting of tank cars, barges and pipe lines from their normal duties means that many localities throughout the Middle West, Mid-Continent, Rocky Mountain and perhaps even the Gulf Coast region are likely to feel the removal to the extent that some degree of rationing may become necessary.

Many communities in these regions have been supplied by tank car deliveries from nearby distribution centers, and shifting of tank cars to East Coast duties means that they are now dependent entirely upon tank trucks for supplies. Many additional trucks will be placed in service, perhaps on a 24-hour basis, but since there is a limit to the number obtainable and an unusually large quantity will be required to adequately handle the situation, the chances are that many villages heretofore adequately supplied without trouble are to see the encroachment of scarcity. It should not be surprising to see conditions become sufficiently critical in some instances as to make rationing necessary. Fortunately, most of these towns and cities are nearer to refining centers than the Eastern region, and on the whole they consume smaller quantities, and the majority are not as important to the nation's war effort as the industrialized communities along the upper Atlantic Coast.

Already instances of shipping troubles because of the switching of tank cars to Eastern service have been reported in some parts of the Middle West, and the new action will intensify them.

April Brings Low Texas Production

TEXAS, biggest producing state, will produce at its lowest rate in almost six years during April, not considering the two-week production shutdown in August, 1939, as protest against a crude price reduction. The state's allowable has been fixed at an average of 1,036,512 barrels of crude oil daily during April, in contrast with an actual production in January and February of this year that was over 500,000 barrels per day greater.

Back in 1936 when the state's production was approximating the level to be imposed during April there were only 61,000 producing wells. Currently, the state has 100,000 producing wells, so it was necessary that the railroad commission order require wells be shutdown 18 days during the month if production was to be curtailed in keeping with the ability of transport facilities to move it to consuming centers.

Mexican Oil Workers Are Dissatisfied

JUDGING from complaints aired recently in Mexico City press by Syndicate of Petroleum Workers, four years of government operation of the Mexican oil industry apparently has left much to be desired on the part of the workers. They are still fighting for the increased wages and benefits they demanded of foreign-owned companies back in 1936 and 1937, increases the companies refused to grant but which the government, on taking over the industry on March 18, 1938, promised the workers. In fact the labor union charges wage reductions ranging from 8 to 26 percent have occurred in some instances and that compensation is now less than those paid by private companies.

These charges were denied by Efrain Buenrostro, general manager of Petroleos Mexicanos (Pemex), the government oil administration, who asserted crippled economic conditions created by difficulty in procuring operating equipment and loss of markets made it economically impossible to fulfill pledges made to labor. Thus Buenrostro, who prior to expropriation was champion of the workers' cause, now contends it is impossible to give the same wage increases and benefits he once so bitterly sought from the private oil companies.

• • • *Talks in an effort to reach a mutually satisfactory evaluation of expropriated Mexican oil properties continue between Morris L. Cooke, representing the United States, and Ricardo J. Zevada, representing Mexico. But daily the chances of these official appraisers reaching an agreement grow slimmer, for they have only until April 19 to complete negotiations. In case the question is not settled by that time, the two governments may extend consideration of the matter until October 19.*

Workovers in Same Zone Not Limited

There still seems to be considerable misunderstanding as to OPC regulations on workover, plug-backs and deepening of old wells. Apparently a number of operators have confused the three classifications and interpretations given on multiple zone operations. For the benefit of those who may have missed previously published statements on such work, we quote the following remarks from an address by D. R. Knowlton, director of production for OPC, before the Dallas meeting of the API in February:

Where you have one zone you can work in that zone all you want to so far as fixing that over or working that particular zone over. But to go to a deeper zone or to plug-back to an upper zone, requires an exception that will be considered on its merits.

In other words, no recompletion work can be done without an exception permit, unless you are using the zone in which the well is now completed.

☆ ☆ ☆ ☆ WASHINGTON ROUNDUP ☆ ☆ ☆ ☆

By B. F. LINZ
Washington Correspondent

SKYROCKETING tanker surcharges for cargoes moving between Gulf and Caribbean ports and North Atlantic destinations which added as much at 225 percent to the basic rates of 40 cents per barrel, served last week to center attention on the Atlantic U-Boat campaign and petroleum shipping troubles, and gave support to efforts seeking to boost inland oil movement to the New England area.

In further moves to relieve an Eastern seaboard practically besieged by the enemy, Coordinator Harold L. Ickes ordered immediate sharing of available tanker space in District 3, intensified efforts to get more tank cars into service, and raised the Michigan April production allowable by 10,000 barrels with a proviso that all the additional oil be sent to New England states.

Final development of the week was action by OPC to increase Panhandle production so as to keep refineries working more steadily and better utilize pipe line facilities to the North.

Early in the week, Coordinator Ickes proposed that the Texas Railroad Commission increase the Panhandle allowable from 55,000 to 82,500 barrels per day during April, without changing the state's total output. The suggestion met with considerable opposition in Texas and over the week-end, to secure the additional oil without necessitating the juggling of the commission's allocations, Ickes wired the commission that the Panhandle allowable could be increased from the approximately 55,785 barrels it had granted to 82,500 barrels and the Texas total correspondingly increased.

Engaging in a week-long fencing match with members of the Senate committee investigating defense, W. S. Farish, president of Standard Oil Company (New Jersey), stuck out his chin, denied categorically every charge made by Assistant Attorney General Thurman Arnold that Standard had been unduly intimate with its German partner in the development of hydrogenation and synthetic rubber patents and declared that as long ago as January, 1939, the company had sought to interest the War-Navy Munitions Board in synthetic rubber.

Tanker Surcharge Rates Granted 200 Percent Advance

Michigan Given a 10,000 Barrel Production Increase

Standard Oil Denies Charges on German Rubber Patents

Eastern Tank Car Shipments Over Half Million Barrels Daily

☆ ☆ ☆ ☆

Transportation Adjusted To Aid Atlantic Coast

A lengthy program for complete reorganization of the transportation facilities in District 2 to expand supplies to District 1 was announced March 31 by OPC.

Developed by the supply and distribution committee for District 2, the plan seeks to release large numbers of tank cars for service to the Atlantic Coast area by setting up a system for a wholesale series of exchanges, loans and sales of supplies, reversal of pipe line and other movements, and substitution of other transportation facilities.

All movement of oil from District 1 to District 2 and south and west from that district is to be halted, and where such movement has existed heretofore, it is to be reversed, if possible, to increase the flow of supplies to the seaboard states.

Group 3 Asked to Share Available Tanker Space

With the transportation situation damming oil and products up on the Gulf Coast, OPC on April 1 ordered the District 3 general committee immediately to set up a supply and distribution subcommittee to lay out a plan for allocating tanker space out of the Gulf in such a way as to minimize the adverse effects of the tanker deficiency.

With the reduction in the number of tankers available for Gulf Coast service and with war-time interruptions in tanker sailing schedules, stocks of gasoline and other products have begun to tax to the utmost the existing storage and transportation facilities of the area, OPC said. It will be the responsibility of the subcommittee to plan the efficient and equitable sharing of available tanker space among all persons affected, in such a way as to minimize the adverse effect of the shortage upon war production.

"Unless the remedial steps now authorized are taken at once, full storage tanks on the Gulf Coast will result in reduced refinery operations, with consequent reduction in by-product recovery of aviation gasoline and other military necessities," it was declared.

The subcommittee will be empowered to take broad action to relieve the situation, including coordinating the sale, exchange, loan, transportation or storage of oil and products among the various producers and refiners.

The Office of Defense Transportation also intensified its efforts to

aid in the oil movement, with Director Joseph B. Eastman appointing A. V. Bourque and Samuel Elder as consultants to Fayette B. Dow, assistant on pipe lines, tankers, tank cars and tank trucks.

Bourque, who is executive secretary of the Tank Car Service Committee, Chicago, has been connected with the petroleum industry for 35 years in association and journalistic capacities. Elder, a Boston and Washington lawyer, assisted in the collection of data for the industry report on petroleum transportation to the Temporary National Economic Committee.

The Association of American Railroads, because of the increasing use of tank cars, announced April 2 the appointment of William E. Callahan as manager of a newly-created tank car section of the car service division.

The association said Callahan's duties will be to advise with and assist tank car lines, oil companies and shipper owners of tank cars in obtaining still greater utilization of cars and expediting their movement. He will maintain close contact with OPC and other federal agencies directly concerned with the transportation of oil.

Michigan Crude Output Upped 10,000 Barrels

Amending his production recommendations for April, Coordinator Ickes this week telegraphed P. J. Hoffmaster, supervisor of wells for the Michigan Conservation Department, that the 50,200-barrel-daily output scheduled for that state could be increased by 10,000 barrels, provided the additional oil is shipped to New England.

At the same time, Ickes called on the Michigan industry to recognize its responsibility of maintaining increased production throughout the coming year "despite necessary restrictions on drilling."

All of the additional 10,000 barrels a day allowed Michigan is to be shipped to the northeastern states, where it will be made available in surrounding areas which now are having difficulty in obtaining supplies because of the tanker situation.

The increase in the Michigan rate raises the recommended daily production of all petroleum liquids for April from 3,656,800 to 3,666,800 barrels.

Tank Car Shipments Top Half Million Daily

Tank car movement into the Atlantic Coast area topped the half million barrel daily mark in the final week of March, it was reported by OPC April 3.

Figures reported by the companies showed a movement of 506,025 barrels a day, against 464,561 barrels in the previous week. A total of 15,742 cars were loaded, representing 3,541,950 barrels, compared with 14,453 cars, or 3,251,925 barrels.

OPC estimated that the number of cars involved in the service is more than 30,000.

In addition to moving these quantities of oil into the shortage area, OPC estimates that more than 3,000,000 barrels a year of heavy fuel oil will be saved for distribution to war industries by voluntary conversion to coal and other fuels. Approximately 170,000,000 barrels a year would be required to meet unrestricted East Coast requirements, it was said.

Tanker Rates Boosted 200 Percent by WSA

War-time conditions resulted in the skyrocketing of tanker rates last week with the War Shipping Administration on April 2 announcing that the 37½ percent surcharge established February 15 would be increased immediately to 200 percent of the basic freight rate on cargoes between United States Gulf ports, including Tampico, and North Atlantic ports from Miami to Montreal, and to 225 percent between Caribbean and North Atlantic ports.

The WSA explained that the increase was based upon the lengthening of voyages due to new routings and new insurance rates of six percent put into effect April 1. At the same time, it was said, a study of average values of the tonnage employed in these services indicates that the original value of $75 per ton deadweight is too low and that an average value of $100 per ton deadweight is more nearly correct.

Eastern Jobbers Refused Higher Fuel Oil Margins

Higher jobber margins on No. 1 and No. 2 fuel oils on the Eastern seaboard were refused by the Office of Price Administration April 1, with notice to the trade that although the acute tanker shortage, the rubber situation and other factors are causing a readjustment of economic conditions and operating methods no adjustments in price schedules will be made until studies now under way are completed.

The OPA disclosed that requests for higher margins have been received from numerous fuel oil jobbers, but said that the current maximum prices will not be revised at this time.

The higher margins were sought after the OPA raised the fuel oil ceiling four-tenths cent per gallon to compensate for higher transportation costs.

Florida Pipe Line Proposed Again

Government construction of an 82-mile pipe line from the Withlacoochee Bay to the St. Johns River, in Florida, as a means of temporarily increasing the movement of oil to the East Coast pending completion of a sea-level barge canal across northern Florida, is proposed in a bill introduced in Congress March 31 by Senator Claude Pepper.

With such a pipe line, Pepper explained, oil could be transported from the Gulf producing areas to Withlacoochee Bay and from the St. Johns River to Trenton, New Jersey, by barges through the protected inland waterways.

Neither rail nor motor facilities will be adquate to the task of supplying the industrial East with the oil needed as a result of the diversion and sinking of tankers, the Senator asserted, but, he said, by the combination of inland waterways and the proposed pipe line, "I believe it would be possible for shipments of gasoline to reach the Atlantic seaboard from the producing area, and thus to a considerable degree alleviate the shortage."

This would afford temporary relief pending the completion of a canal which would make possible the uninterrupted all-water transportation of oil from the Gulf to North Atlantic areas.

Pepper, who was a strong supporter of the Florida ship canal project, quoted General Edward M. Markham, former Chief of Engineers of the U. S. Army, as saying that the canal would have been equivalent to adding 14 percent to the number of tankers in use.

Farish Explains German Rubber Deal to Senate Committee

Challenging charges by Assistant Attorney General Thurman Arnold that Standard Oil Company of New Jersey had retarded and stifled the development of synthetic rubber in this country, W. S. Farish, president of the company, disclosed to the Senate defense investigating committee March 31 that repeated efforts had been made over a period of more than two years to interest government agencies in synthetic rubber production.

Called before the committee to give his version of the cartel agreement entered into in 1929 with I. G. Farbenindustrie—German chemical trust—outlined last week by Arnold in testifying regarding the consent decree under which all of Standards patents from the cartel are to be made available to all interests without royalty during the emergency, Farish declared that many of the actions criticized by the anti-trust chieftain had in fact been taken at the suggestion or order of government departments.

At the final hearing of the week, representatives of three federal agencies challenged Farish's version of certain events, and created so much doubt in the minds of the members as to just what had transpired that it was decided to recall the Standard Oil executive for further examination next week.

Japan, Farish testified, never obtained a license for 100-octane gasoline by the hydrogenation process, although before the outbreak of war in 1939, I. G. negotiated a license agreement involving $2,000,000 in royalties, to which the American company withheld consent after placing the proposal before the State Department.

Farish admitted that aviation gasoline was delivered to an Italian airline in Brazil last year but such deliveries, he explained, were first discussed with the State Department and the American embassy at Rio de Janeiro, and the department's appreciation of the company's cooperation in the government's policies was expressed in a letter which he made available for confidential examination by the committee.

He also admitted the truth of Arnold's statement that in 1938 and 1939 Standard's German subsidiary planned to erect a plant in Hamburg for the production of aviation gasoline, but pointed out that the subsidiary was a German corporation, managed and operated by Germans and accountable to the German government. Furthermore, Farish said, commercial relations with Germany were normal at that time and, under the circumstances, refusal of the American company to assist in the design of the plant would have been unwarranted.

Toluol Development

The Standard official explained the toluol situation at length, outlining how the Army Ordnance Department inquired into the possibilities of producing synthetic toluol in 1939, placing an order with DuPont for 20,000 gallons as an experiment. Standard proposed to pay half the $86,000 which it was estimated the toluol would cost, found that the actual cost of producing the order was more than $135,000 and took a loss of $92,000 on the project which, however, demonstrated that "any required amount of toluol could be produced, synthetically from petroleum in the United States as fast as the Army thought it necessary to build the plants for use of the process which we had developed."

One result of the experiment, he said, was the larger program, involving the construction of a $12,000,000 plant at Baytown, Texas, by Humble Oil & Refining Company, which has a minimum capacity of 30,000,000 gallons a year.

Revealing that Germany in July, 1941, was willing to pay $24,000,000 in gold for Standard subsidiary, Maort, which was engaged in crude production in Hungary, Farish told the committee that an application to the Treasury Department for approval of the sale was denied and in August the Economic Defense Board also disapproved.

"We pointed out that in our opinion the sale of the Hungarian property would be desirable," he explained, "because, with German domination over Hungary, the property would be taken by Germany if and when needed regardless of ownership; that if Germany should need Hungarian oil, the fields would be produced uneconomically, thus quickly destroying their value; and that even should war end fairly soon, the Hungarian property probably could not be operated profitably to American stockholders. We stated that we would not consider under any circumstances anything which might be inimical to the interests of the United States. Our view was that the United States would be the gainer to the extent of whatever we might be able to realize from the Germans for the property.

"On September 22, 1941, we were advised that our application to the Economic Defense Board was not approved. This ended the matter."

With the outbreak of the war in 1939, Standard foresaw difficulties as a result of its agreement with I. G., and immediately took steps to eliminate German interest in the American corporations, placing the patents in the hands of a trustee who, if America entered the war, could account to the Alien Property Custodian for any equitable interest of the Germans. These interests actually have been vested in the Alien Property Custodian, Farish testified.

Far from being, as charged by Arnold, plans which would operate throughout the term of the war whether or not this country was involved, the agreements simplifying the situation were made with the knowledge and approval of the American Ambassador in London and the British foreign office and with the cooperation of the State Department in carrying the signed documents from Berlin to Paris in diplomatic mail pouches.

Getting into the question of synthetic rubber—a question which has been investigated by a half-dozen Congressional committees—Farish disclosed that efforts were made to interest the government in the product as early as January, 1939—long before the outbreak of the war.

This effort, he pointed out, "began eight months before the war started and nearly three years before Pearl Harbor."

From then on, negotiations went on almost continuously with the Army and Navy Munitions Board,

National Defense Advisory Committee, Office of Production Management and Reconstruction Finance Corporation. Efforts also were made to interest rubber and tire companies in synthetic.

"Standard has no apologies to make for the part it has played and is now playing in the development of synthetic rubber," he declared. It brought to this country from Germany the I. G. Buna rubber invention now being used in the government rubber program. Should this program be supplemented by Butyl rubber, it will be because Standard, through its experience gained in working with Vistanex, another I. G. invention, succeeded in developing the Butyl formula."

Even when the Rubber Reserve Corporation suspended work on the government butadiene project at Baton Rouge for one year, in September, 1941, Standard continued its engineering work at its own expense, and when the corporation revived the project after Pearl Harbor, the company's work had so advanced that practically no time had been lost because of the September cancellation, Farish said.

Arnold's final charge, that Standard had tried to monopolize the patent rights it obtained from I. G., also was controverted by Farish, who asserted that "so far as we can recall, every oil product and process mentioned in this hearing has been licensed broadly by Standard."

Questioned by the committee as to whether any Standard employes or officials were serving in Washington as dollar-a-year man, Farish digressed from his testimony to warn that the government will lose the war without the services of the dollar-a-year executives. Without them, he declared, "your production will fall and your war effort will fail." The ony alternative way to get the services of these men, he said, would be to take away all private rights and put them in the Army or Navy.

Navy Not Interested in Technical Phase

Continuing his testimony April 1, Farish admitted that technical details of the manufacture of butyl had been withheld from a representative of the Navy Department who visited the Standard plant in 1939, but sought to convince the committee that the Navy man was "not particularly interested" in the technical phase but rather in the uses to which the rubber could be put.

Farish found himself under fire from Senator Joseph C. O'Mahoney of Wyoming, who is not a member of the committee but had been permitted to attend the hearing and question the witness.

O'Mahoney read a letter which had been put into the record by Arnold, without disclosure of either writer or recipient, in which it was stated that the writer "took Mr. Werkenthin over to the 'K' plant when it appeared that I could not very well steer his interest away from the process."

.The Senator asserted the letter did not agree with the witness's assertion that full details of Standard's synthetic rubber activities had been revealed to the Army and Navy Munitions Board. "A lay person reading that paragraph from your files cannot avoid the inference that this official of Standard Oil was instructed to steer a Navy representative away from that process," he told Farish.

Throughout the hearing Farish and F. A. Howard, vice president of the company, who appeared with him, clashed frequently with members of the committee, largely over whether Standard actually had been fully open with the government. Both company officials insisted that the government had been kept fully informed of the development of the synthetic rubber processes.

Destroy Properties

All properties in the Dutch East Indies in which Standard had an interest were effectively destroyed before the Japanese occupation, Farish told the Committee April 2.

Members of the committee expressed an interest in the Far Eastern situation, and Farish explained the company had a 50 percent interest in a Dutch company.

There were four American managers in charge of the property, he said, and "they destroyed oil wells, pipe lines and refineries."

"They left the tubing in the wells and pumped them full of cement," he added. "Then they went to Java."

Later, he disclosed, the four Americans escaped to Australia.

In a concluding statement, Farish reiterated that Standard "didn't delay the rubber program."

"If an explanation for lack of rubber must be found, look to Japan," he told the committee. "It took Pearl Harbor and the fall of Singapore to bring home to the people the rubber shortage in which we now find ourselves.

"Whatever the cause, the fact is we need rubber. The job before us is to get it. We have done and shall continue to do our best in cooperation with the Government to keep America on wheels.

"Fortunately, the United States has unlimited quantities of the raw materials from which this synthetic rubber is produced — oil and natural gas. No other country in the world has those materials in such abundance. No other country can create a synthetic rubber industry as speedily or as effectively as the United States."

Instead of junking the 30,000,000 automobiles now on the roads, they should be allowed to wear out in "useful war time service," he asserted. This could be provided for by expanding the rubber program and, he said, "if this could be accomplished without interfering with the war effort, the creation of the necessary synthetic rubber capacity would require less than one day's production of steel and a plant investment of about $15 per car."

Different Version

Different version of the discontinuance of gasoline supplies to the German "Lati" airline in South America was given by William La Varre, chief of the American Republics Office of the Department of Commerce, and Assistant Secretary of State Adolph A. Berle, Jr.

La Varre testified that the line was a link in the Axis propaganda chain, running men and materials through the British blockade to South America and the United States.

Berle declared that the company had refused to stop furnishing gasoline to Axis lines until issuance of the government blacklist. A representative of the company, he testified, refused in October, 1941, to follow the department's suggestion to cut the lines' supplies, explaining that there was a contract for the service and the company might be liable to suit if

[*Continued on page 50*]

Shop-Made Gauging Device

Simplifies Salt-Water Handling

By GILBERT M. WILSON, Staff Writer

INEXPENSIVE, simply constructed salt water gauging units of a type and design that makes their use easily adapted to the production from any single well, group of wells, or an entire lease, are being used with consistently good results by a California oil company. Water, in passing through the unit not only is accurately metered, but at any time the rate of production may be read from a float indicator on the side of the container, by the pumper directly in terms of barrels per day production.

To a company operating their wells on an efficient basis, the handling of waste water is one of the "necessary evils" in routine production practice, yet it must be gauged as accurately as the field conditions warrant, in order to keep an up-to-date record of the performance and condition of the wells.

The water-gauging unit is essentially a tall tank provided with an orifice of carefully determined size at the bottom, through which the water escapes. Water entering the tank passes out through the orifice at a rate which is dependent upon the height of the column backed up in the tank. A float inside operates an indicator that moves up and down on a calibrated board on the outside of the tank.

The unit operates on the familiar principle of the orifice-plate meter, widely used on gas flow lines to measure the volume of gas passing through the system.

In the gas meter, a plate having a round aperature somewhat smaller than the inside diameter of the pipe itself, is placed in a receptacle or between two flanges in the gas line. A pressure drop occurs across the orifice plate and a recording meter simultaneously indicates the static pressure on the upstream side, and the differential in pressure between the upstream and downstream sides. With the aid of a known constant or coefficient, which is a function of the diameter of the pipe line and orifice, the rate of flow of gas through the line can be computed with the aid of a special formula used in calculating gas measurements.

In the water-gauging device, the hydrostatic head of the column of the water is the counterpart of the differential pressure of the gas orifice meter. The greater the rate of incoming water into the tank, the higher the column will rise, which in turn increases the hydrostatic pressure over the outlet, or orifice. This of course causes the water to escape with greater velocity, and in a greater volume. Given a fairly steady rate of production, and providing the orifice holes have sufficient capacity, the water level in the tank will eventually attain a constant height.

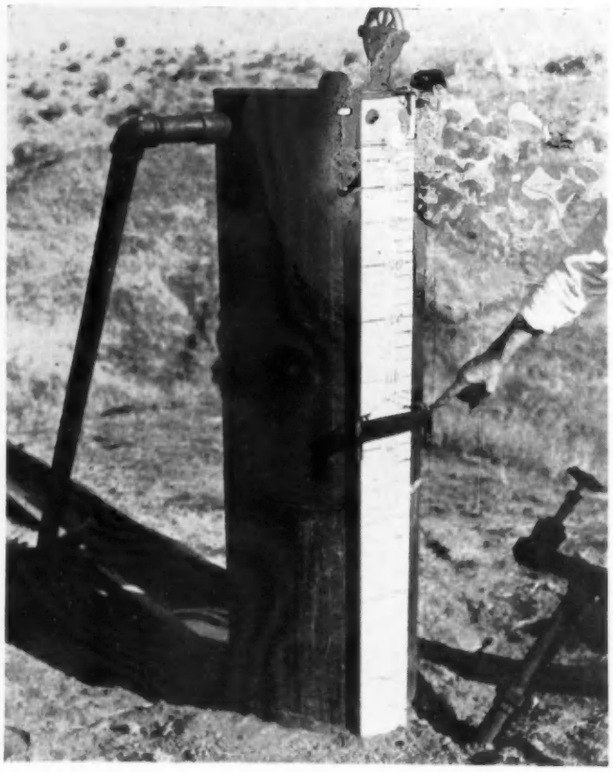
The assembly consists of a 6-foot length of 18- or 20-inch welded conductor pipe with a flat bottom, and open top, set in an upright position on the ground or level plank base. It is located at or near the tank battery, and preferably in a slightly elevated position with respect to the water run-off ditch or collecting pond.

Water taken off from the water leg at the wash tank is brought down in a 2-inch lead line, and enters the back side of the gauging unit through a fitting welded into the side some three or four inches above the bottom.

On the front or outlet side, likewise near the bottom, a 6- or 8-inch opening is cut out of the tank. An adapter flange, cut on the one side to fit the contour of the tank, and square on the other, is welded to the body of the tank surrounding this opening. A collar of 3/16-inch steel plate then is welded to the outer face of the flange.

The orifice plate, a flat, 10-inch square steel plate having one or

The orifice plate is a flat piece of steel with one or two ½-inch cleanly drilled holes. The illustration shows the size of stream thrown out with a rate of 150 barrels per day. These two orifices are capable of handling up to over 220 barrels per day.



As the water backs up in the tank and approaches a constant level, a float on the inside operates an indicator on the outside of the unit. The points marked off on the board are calibrated directly in terms of barrels per day.

two small holes drilled through it near the center, is clamped over this opening by means of small screws or bolts. A rubber gasket placed between the two plates prevents leakage.

The size of the hole (or holes) in the orifice plates is dependent upon the volume of water that it is estimated will be handled. In the example of the unit shown in the accompanying photograph, it was found that two ½-inch holes provided sufficient cross-sectional area of opening to handle up to approximately 225 barrels of water per day.

If for any reason the water production is cut down materially, one of the holes in the orifice plate may be shut off with a cork. In such instances, the reading indicated on the side of the tank is merely divided by two to obtain the correct production figure.

In drilling the orifice plates, special care must be taken to insure smooth, sharp-edged holes. After a long period of use, the plate should be removed and the holes checked for possible corrosion or obstruction that would affect the accuracy of the gauging unit.

A 1- by 8-inch board, painted flat white, is calibrated and marked off in black lines, then bolted to the side of the tank. The indicator, a square-cut piece of light sheet iron, runs up and down the face of the board, guided by two parallel wires fastened to overhanging steel ears welded to the top and bottom of the tank.

The board is calibrated through the application of a hydraulic formula used in computing the rate of discharge of a fluid through a sharp-edged orifice, when the height of the fluid column above it exerts a known head. The formula is as follows:

$$Q = 0.61A\sqrt{2gh} \text{ or } h = \frac{\left(\frac{Q}{0.61A}\right)^2}{2g}$$

Where Q = Discharge in cubic feet per second
A = Area of orifice (in sq. ft., or fraction thereof)
g = 32 ft. per second per second
h = height in ft. of surface of water above center of orifice.

To calibrate the tank, it will be necessary to determine the value of "h" for several barrels-per-day rates and mark them on the board. In the instance of the above described unit, principal divisions were carried down for every 20 barrels, with the spaces between divided into smaller units that make it more easily read by the pumper or gauger. The value of "Q" of course will have to be changed from cubic feet per second to barrels per day.

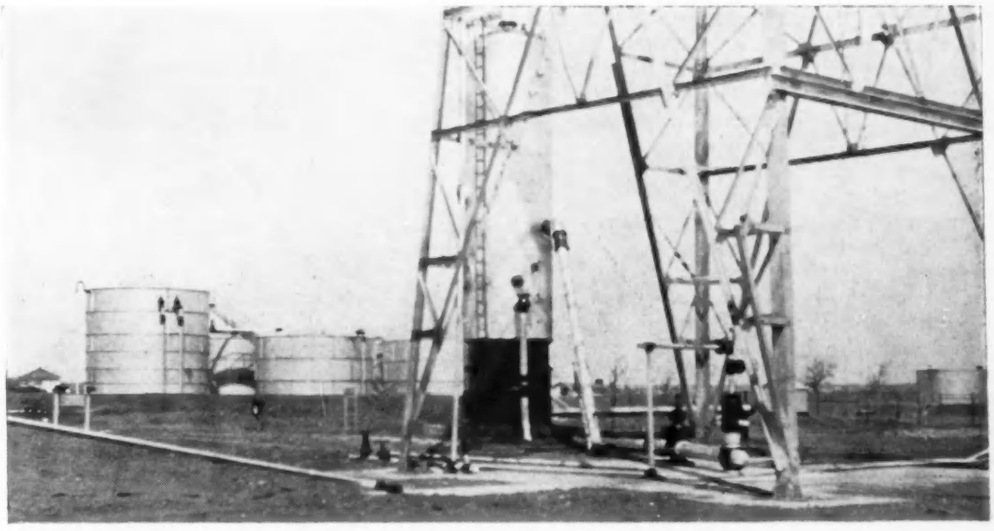
A 2-inch overflow outlet pipe near the top of the tank provides an emergency exit for the water should something plug up an orifice, or the production rate suddenly increase. The pipe is bent around so it will empty into the drain-off trough below the orifice plate outlets.

The water-gauging device fills a number of needs around the average lease which produces water along with the oil. Used in conjunction with a small gauge tank into which a high watercut well is turned in for separate gauge, the unit can measure the water directly as it is drained off from below the oil in the tank through the water leg. In such a case, a smaller tank might be used than would ordinarily be required if it were necessary to hold both the oil and water in the same tank until the gauger could get around to the battery to gauge and drain off the water.

If the unit is used in measuring the water taken from the production of several wells which produce into a common tank, it may be used as a daily check on the combined water cuts. The water cut or "grindout" of each individual well may be taken once every month (or at whatever interval is deemed necessary under the circumstances) and during the intervening time, the collective water production from all the wells may be watched and recorded daily. If the total cut remains constant, the individual well cuts may be assumed to be practically unchanged, but a change in the volume of water passing through the unit will indicate the need for a detailed check on the production and water cut of each individual well in that group.

The above multi-well type of gauging also is ideal for stripper well leases where anywhere from 25 to 50 wells may be producing into a common tank. On such a lease, the settled production does not vary a great deal, and the total water produced, without necessitating special handling, may be continuously gauged, to provide valuable data used in estimating water encroachment, lifting costs, and other field problems.

The unit may be quickly set up for service under almost any type of field conditions, and may be easily adaptable to portable gauging equipment that is used for special gauging conditions. Another point of value is that it may be constructed almost entirely of salvaged or re-conditioned steel materials.



This well at Oklahoma City produced at the rate of 12,000 barrels per day on straight gas lift.

Methods for

Lifting Oil and Water in Large Volumes

By S. F. SHAW, Consulting Engineer

FOR several years there has been a much larger producible supply of oil than necessary to fill consumption demands, consequently it has been necessary to reduce the production of many wells in the United States to a very small quantity, which in most instances has been only a fraction of the productive capacity of these wells. Under these conditions, the methods employed for lifting the oil have been considerably different from those that would be employed if it were desirable to extract greater quantities.

Now it appears that the time may be approaching when the industry may have to produce oil in larger volumes from present wells in order to supply enlarged demand with fewer wells. Fortunately, recent years have witnessed a sufficient demand in a few oil-producing areas to require large-quantity production rates, and improvements in large-capacity lifting methods have been attained which may cope with the current situation.

The question of methods applicable to the lifting of large quantities of fluid also comes to the fore when water incroachment reaches the point that large quantities of fluid must be lifted in order to extract even the small allowables. Extraction of fluid in some fields has reached the point where 1000 to 20,000 barrels must be lifted in order to meet the allowables and to enable the operation to show a profit. In this list are such fields as Boggy Creek, Darst Creek, East Texas (west edge), Hendrick, Iowa, (Louisiana), Luling, McCampbell, Placedo, Roanoke, (Louisiana), Salt Flat, Saxet, Saxet Heights, St. Louis (Oklahoma), Zwolle (Louisiana), besides many other pools, especially many of those along the Gulf Coast where water in large quantities enters the wells.

In some fields where the reservoir rock is porous and very permeable, large quantities of fluid many enter the well, particularly if there is a high head of water behind the fluid. In some of these fields the reservoir pressure is maintained at a relatively high point and the flowing pressure, or its equivalent in fluid level, at the bottom of the well remains high even when extracting large quantities of fluid. In other fields where the reservoir rock is tight, the fluid will not enter the well in large volume even though the reservoir pressure is relatively high, and though the flowing pressure is reduced to a low point. In such instances there is little to be gained by attempting to reduce the fluid level to a low point since this does not result in increasing the flow commensurate with the expense required to maintain the fluid level at a low point.

Necessary to Lift More

During the past few years, new oil fields have not been found that are capable of maintaing production at the rate that appears necessary for the duration of the present war conditions, if this condition prevails for a considerable time. Moreover, it appears likely that it will not be possible to obtain casing and other equipment necessary to equip additional wells to take care of the increased demand, wherefore, it seems quite possible that it will become necessary to increase the production of oil from the wells that are capable of producing greater quantities.

Lifting of large quantities of fluid from the deeper wells from which a greater percentage of oil is now extracted, is not the simple matter that obtains in shallow wells. Special equipment may be

necessary for such wells, and much of this equipment is expensive, consequently it is desirable to select the method that will lift the oil with the minimum outlay of capital, and which will require the minimum lifting expense consistent with the conditions that exist in the oil reservoir, in the well itself, and in the locality.

It is a mistake, however, to install a method that cannot meet the lifting conditions required, merely on the basis of lifting expense per barrel being lower than some other method. Profits are based on the net amount received per well rather than on the costs per barrel. For instance, it is less profitable to lift 100 barrels per day at a cost of 10 cents per barrel, than to lift 1000 barrels per day at a cost of 25 cents per barrel. Of course the production of 1000 barrels per day cannot be maintained in a given well nearly as long as 100 barrels per day, but it must be remembered that return of the cost of a deep well cannot be deferred for too long a time without losing out on the financial advantage of turning over this investment from time to time.

The methods that are employed for lifting oil at a high daily rate are as follows:

1. Natural flow
2. Gas-lift in some form
3. Centrifugal pump
4. Hydraulic pump
5. Beam pump.

Natural Flow

As long as natural flow can be maintained and can lift whatever production that is required, it is probable that this method will be employed. Natural flow is the least expensive lifting method that can be employed since it requires only the opening of a valve to the point where the required production is obtained. Natural flow takes place by reason of high reservoir pressure acting in the manner of artesian flow, or by reason of the presence of sufficient gas dissolved in the oil to lift it at the required rate, which method is, of course, natural gas-lift flow.

Straight Or Continuous Gas-Lift

The two forms of gas-lift employed for capacity lifting are straight gas-lift and combination gas-lift. Straight gas-lift is the logical method to follow natural flow, and so far as the well is concerned, if a tubing string has already been run into the well during the work of well completion and while natural flow takes place. It is the simplest and least expensive method to install, since it consists merely in injecting gas through the tubing in sufficient quantity to maintain the desired rate of production. In many cases it is the only method that can be employed that will maintain capacity production, inasmuch as cessation of natural flow takes place at a time when there is considerable gas associated with the oil which interferes seriously with the use of any form of mecanical pump. During this transition stage, in many fields, considerable sand accompanies the oil, but the lifting of sand presents no difficulty when employing continuous gas-lift. Straight gas-lift has been employed for lifting mill tailings in copper concentration plants for many years at a low cost. One such instance is at the Chino Copper Company mill at Hurley, New Mexico, where the cost amounted to 1 cent per dry ton, or 0.15 cent per wet ton of material lifted.[1] The presence of sand when lifting by any form of mechanical pump means increased lifting cost, and in some cases these costs becomes prohibitive.

Straight gas-lifting in large quantities is not done through the tubing string. There must be sufficient area through which the combined volume of oil and gas can flow without setting up high friction losses, since high friction losses always result in imposing a high back pressure against the formation, and restricts the flow of liquid into the well. This is no fanciful statement. It has been demonstrated again and again in Tonkawa, Seminole, Oklahoma City, Saxet Heights and various other places by very careful tests, all pointing to the same conclusion, and is a case of adapting the theory to the facts instead of trying to make the facts fit a theory.

If natural gas under sufficient pressure is available from gas wells situated within a reasonable distance, this provides the least expensive source of power that can be obtained. Such conditions exist along the Gulf Coast, and in some other areas, offering especially favorable conditions for the use of straight gas-lift as compared with the use of this method in some other places. Gas under pressure of 500 to 1000 pounds per square inch has been available in various fields along the Gulf Coast at times, at a cost of ½ cent to 2 cents per thousand cubic feet. The cost of lifting large quantities of fluid under this condition is very low, as a rule, since along the Gulf Coast large quantities of fluid indicate an active water drive, thus maintaining high fluid levels at a comparatively high point, and therefore, requiring small quantities of gas per barrel lifted.

At Saxet, input-gas-factors range from 100 to 300 cubic feet per barrel in the larger sizes of casing, and generally speaking, the lowest gas-factors are obtained in the larger sizes of casing. The wells under such conditions can continue producing until the content of the oil in the fluid is down to as low as 1 percent, before the lifting costs become too burdensome. Most of the wells in the near-by Saxet Heights field at depth of about 4100 feet were carried to depletion by this method, and no other method than gas-lift in some form was employed in this field.

It was found in the Saxet Heights field that the sequence of abandonment was first that of pulling the wells with 5½-inch casing, followed by the wells with 6⅝-inch casing, and lastly, the wells with 7-inch casing were abandoned. This sequence of abandonment was the result of smaller casing having insufficient capacity to enable a profit to be made with as high a water content as could be handled through 7-inch casing. In the Saxet field, a well with 5-inch casing has a capacity of 1500 to 2000 barrels of fluid per day, with water content of approximately 98½ percent under flowing pressure similar to that of a well completed with 7-inch casing in which the production is 7000 barrels of fluid per day, having a water content of 98 percent. Both of these wells are produced by straight gas-lift.

In recognition of the difficulties in lifting large quantities of water containing very low percentages of oil, the Railroad Commission of Texas has granted "water allowables" whereby large quantities of fluid can be produced daily, thereby enabling the operator to continue to show a profit and thus prevent such wells from becoming prematurely abandoned, thereby avoiding the waste of oil that would probably never be recovered after these wells reach the point where abandonment would ordinarily take place by reason of unprofitable operations resulting

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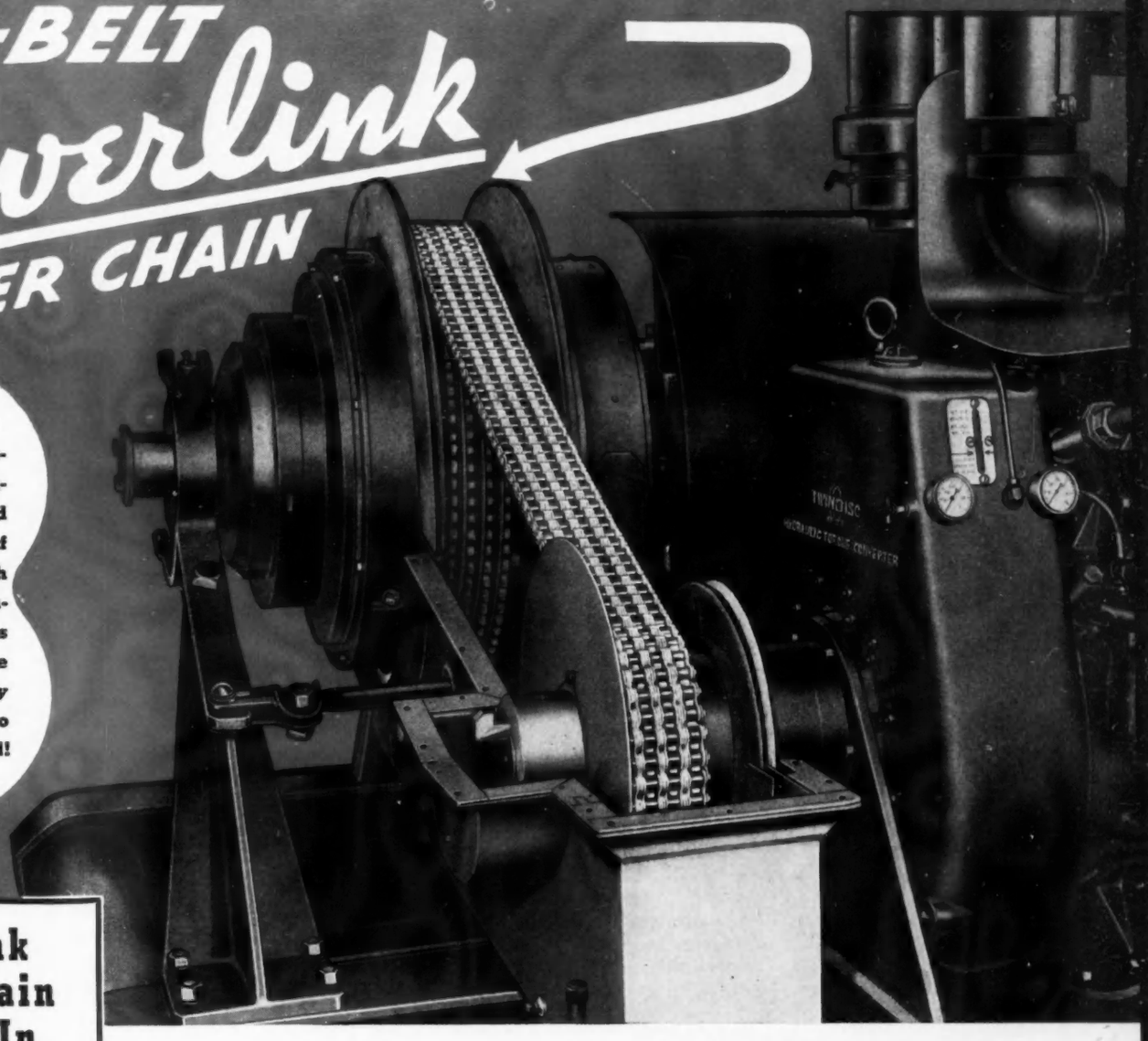

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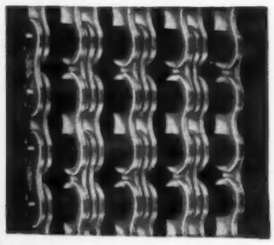

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from the necessity of being held down to a small daily allowable.

Capacities of a few wells on continuous flow in the Hendrick field, Texas, range up to more than 20,000 barrels of fluid per day with a water content up to 99½ percent or more. The fluid level in these wells stands high, and the flow is almost that of an artesian well, in fact, some wells do produce a certain amount of fluid by artesian flow in this field.

The cost of lifting fluid in wells with high fluid levels with gas obtained from gas wells at a low cost is a very different matter from that which prevailed in the Seminole, Oklahoma, field in 1927-1931, and in other field operating under similar conditions. Not only is the equipment and operating cost much reduced, but the manner of employing this method now is much better understood.

Combination Gas-Lift

Combination gas-lift demonstrated a remarkable capacity under low fluid levels in the Wilcox sand of the Oklahoma City field. In 9⅝-inch O.D. casing with 3-inch tubing, the combination, gas-lift, centrifugal pump method was able to handle as much as 5000 barrels per day with flowing pressure at the inlet to the pump of 75 to 100 pounds per square inch, whereas continuous gas-lift under these low-fluid-level conditions had a capacity of 500 to 1000 barrels per day. In the Wilcox sand, the reservoir was very thick, up to 200 feet, and the sand was very porous and permeable, consequently a large flow of oil would enter the well, even though there was an absence of water drive and although the gas associated with the oil amounted at this stage to only 100 to 200 cubic feet per barrel. In the early stages of the field immediately after natural flow ceased, some difficulties were encountered from gas and sand but later these adverse conditions did not exist.

The lifting expense for compressed gas and for electrical power when employing the combination gas-lift, centrifugal-pump method ranged from 1.2 cents to 4.3 cents per barrel for compressed gas, and from 0.67 cents to 2.1 cents per barrel for electricity.[2]

The combination gas-lift, hydraulic-pump method also was employed in the Oklahoma City field for lifting fairly large volumes of oil after the reservoir pressures were reduced to a low point. The lifting cost was reasonable.

Sizes of Casing When Using Gas-Lift Methods

The question of casing sizes with which to complete wells of great depth in which there is likely to be an active water drive is a most important factor to consider. Many of these wells should be produced to depletion by gas-lift, and the degree of depletion which can be reached depends upon the size of the casing through which the lifting operation takes place. It has been demonstrated in the McCampbell field, Saxet and Saxet Heights fields, all of which have water drive to some extent, the latter two having very active water drive, that the larger the casing, the longer is the life of the well, inasmuch as production can be profitably carried to a lower point of oil percentage in the fluid through large casing than in smaller casing. Conventional methods were not employed in the Saxet Heights field at 4100 feet in depth, none have been installed in the McCampbell field at depth of 7100 feet, and none have been installed in the 5800-foot sand of the Saxet field. In fact, the cost of such an installation in these fields appears out of the question when considering the depth of the well and the limitation as to the quantity of fluid that can be lifted by these methods.

Not only is large casing diameter important on the score of artificial lifting operations, but the matter of handling well jobs and cleanout operations is made much more difficult through casings of small diameter.[3] Junked wells and leaking casings are much more likely to happen in small casing sizes than in larger diameters of casing. This matter has been discussed to some extent in papers and articles recently published.[4, 5]

Straight Pumping Methods

The straight centrifugal pump is capable of lifting large quantities of fluid, although not nearly as great a quantity as the straight gas-lift or combination methods. However, after fluid levels have declined to a very low point, large quantity production on continuous gas-lift becomes impracticable, due to the limitations imposed by the casing sizes usually employed. A point in reservoir pressure and in capacity is reached in straight gas-lift and in combination flow at which the straight centrifugal pump is the preferred method.

In fields of depth of 6000 feet or more, where the fluid levels are low, that is, where the reservoir pressures are on the order of 10 to 50 pounds per square inch, and where there is a large production to be lifted that is on the order of perhaps 1000 barrels per day and were casing diameters are no greater than those in use, the straight centrifugal pump has many advantages. If there is but little gas present with the oil and if sand or caving troubles are not serious, the centrifugal pump can handle this production at rather low cost, but if sand troubles are serious, the expense of pulling the pump and making repairs on the pump and motor may become excessive.

For such troublesome conditions it would seem some form of combination gas-lift pump could be invented that would be suitable for the purpose, but so far no such pumping method has appeared on the market.

The hydraulic pump possesses considerable capacity, especially where large tubing sizes can be employed. Some difficulty is experienced from the entrance of considerable quantities of sand and also the presence of paraffin in large quantity. However, the lifting expense is lower when using the hydraulic pump, than many of the other methods of lifting oil.

There is no particular difficulty in lifting fairly large quantities of oil from shallow wells, since pumping methods in use can handle large quantities from such depths. As a rule, however, shallow wells are not large producers, since the reservoir pressures in such wells are low, and the oil contains very little gas associated with it.

The beam pump is capable of lifting considerable quantities of oil in shallow wells, but becomes reduced in capacity as the wells increase in depth. The casing pump offers a means of reducing the fluid friction that takes place through a small tubing string, especially when pumping from fairly deep wells. Crooked holes are a source of much trouble in wells producing on the beam pump, especially in wells of considerable depth.

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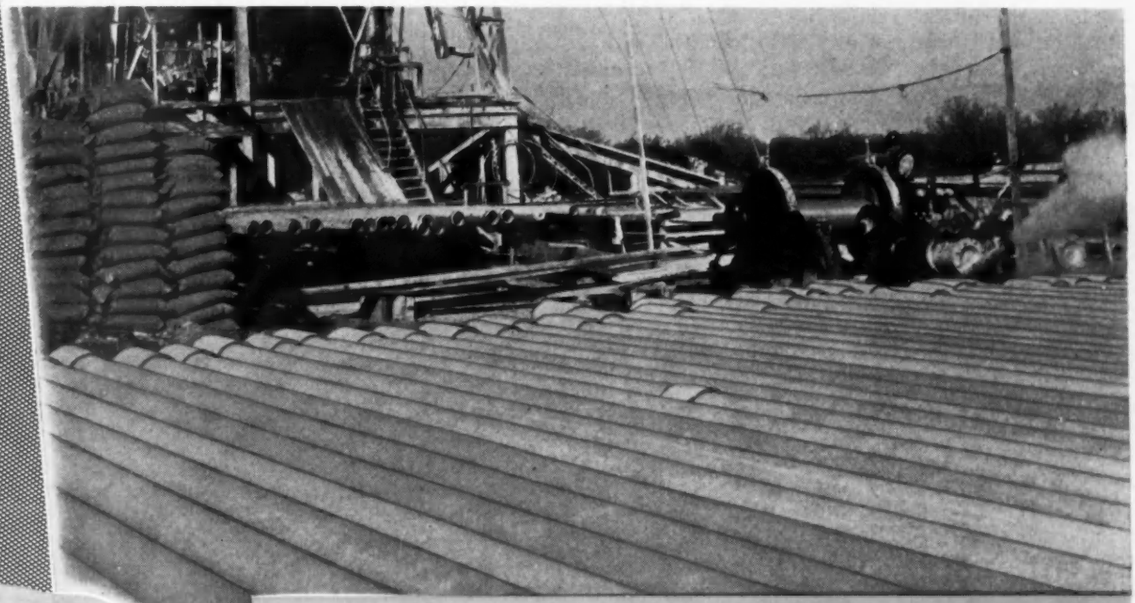

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Pressure Maintenance

In the K-M-A Field

By WM. H. ROUZER, JR.
Engineer for the K-M-A
Maintenance Association

WITHIN the last few years there have been many radical changes in this business of finding and producing oil. One of the direct results has been a closer scrutiny of methods for increasing ultimate recoveries.

The K-M-A Pool is an outstanding example of a number of oil operators initiating a program to conserve a natural resource, and by efficient methods of recovery and gas reinjection ultimately produce millions of barrels of additional oil and save billions of feet of natural gas.

In November 1939 the K-M-A Pressure Maintenance Association was formed to coordinate the efforts of over 150 companies operating 375 leases and over $3,000,000 in gasoline plants.

A study of the engineering records of these 1591 3800-foot wells emphasizes the theoretical predictions pertaining to increased gas-oil ratio and declining productivity in a depletion type reservoir. Gas injection has resulted in lower producing gas-oil ratios and increased productivities.

This paper was presented before the Spring meeting of the Mid-Continent District, American Petroleum Institute Division of Production, Tulsa, March 26-27, 1942.

WITHIN the last few years there have been many radical changes in this business of finding and producing oil. The industry, with remarkable ingenuity, has constantly found, and put into practice, new methods developed by the best engineering and technical skill. Prorated production, deeper producing zones, higher development costs, and longer payouts have necessitated closer examination and more efficient operation of oil-producing property. One of the direct results of this changing panorama has been a closer scrutiny of methods for increasing ultimate recoveries and more efficient usage of any natural energy inherently within an oil reservoir.

Years ago in Ohio, gas and air were returned to oil sands with beneficial results. These experiences led to numerous projects of a similar kind in stripper-well areas throughout the country. In most instances they were a product of necessity, being used to make profitable, border-line properties. They were observed with but little interest by a majority of oil operators, for considerable work, worry and time were needed for what was considered a relatively small amount of oil. This type of project was for the most part left to the man who would go to the necessary trouble. As the trend leaned more and more toward smaller margins of profit and an increasing difficulty in finding large, flush, producing oil fields, many companies began to take more notice but were still reluctant to join in large projects.

An added impetus is now being given to higher recovery efficiencies by the emphasis on declining reserves, and by a certain amount of fear for adequate supply of petroleum products, to carry on the war. It is now the Federal Coordinator's duty to thoroughly investigate the situation and to encourage practices which would assure a steady supply of all the petroleum products needed for a war of possible long duration.

The K-M-A pool is an outstanding example of a number of oil operators initiating of their own free will a program to conserve a natural resource, and by efficient methods of retarded recovery and gas reinjection ultimately produce millions of barrels of additional oil and save billions of feet of gas.

The K-M-A pool is in the southwestern part of Wichita County of North Texas. The surface rocks in the vicinity are of Permian age. The general attitude of the beds down to the older depositions of the Red River uplift is a northeast strike with a northwest dip. Drilling in the K-M-A field has encountered a number of saturated zones. Oil has been produced since 1912 from the Cisco formation at depths above 1850, but it was not until 1927 that deeper drilling found oil at approximately 3650 feet in the Strawn section. Development has covered an area 14 miles long and 8 miles wide. The accumulation is on the south side of the district's main structural feature known as the Red River arch. It would appear that the last active disturbance was in middle Strawn time when the uplift existed as a chain of islands stretching east and west in a shallow sea. In what is now the western part of Wichita County and now the location of the K-M-A field, a promontory extended south from a high point on the uplift, the present Electra field. Around this promontory, sands, oolites, reef building material, and limestone gathered. This mass-like deposit is now described as the K-M-A lime, although it is made up of the utmost variety of porous rocks. The whole structure is a complex anticline having a dense seal on the north, with no indication of active water drive. This description is given to transmit a picture of oil accumulation in a section which grades from oolite lime through sandstone and sandy limes into sandstone and shales, far from the ideal picture of a reservoir adaptable to secondary recovery methods.

It has been estimated that the formation has an average porosity of 16 percent. Permeabilities in the producing section have been found to range from 30 to 2,000 millidarcies. The difference is, however, so great from area to area that no average figure is of any value. It has been observed that the formation is as a rule so tight that natural drainage after reservoir pressure has reached 300 to 400 pounds gives but 5 to 6 barrels of oil per well per day.

The 30,000 productive acres of the pool are developed by 1,591 wells, owned by over 150 operating companies, the great majority of which are small. The discovery well was drilled to the K-M-A lime to 3911 feet in March, 1931; however, actual development did not begin until mid-year of 1937. Not long after production had begun it was observed that due to an undersaturated condition with no free gas and relatively low permeability, bottom-hole pressure declines were great and the loss of natural reservoir energy was excessive. Gas produced was not be-

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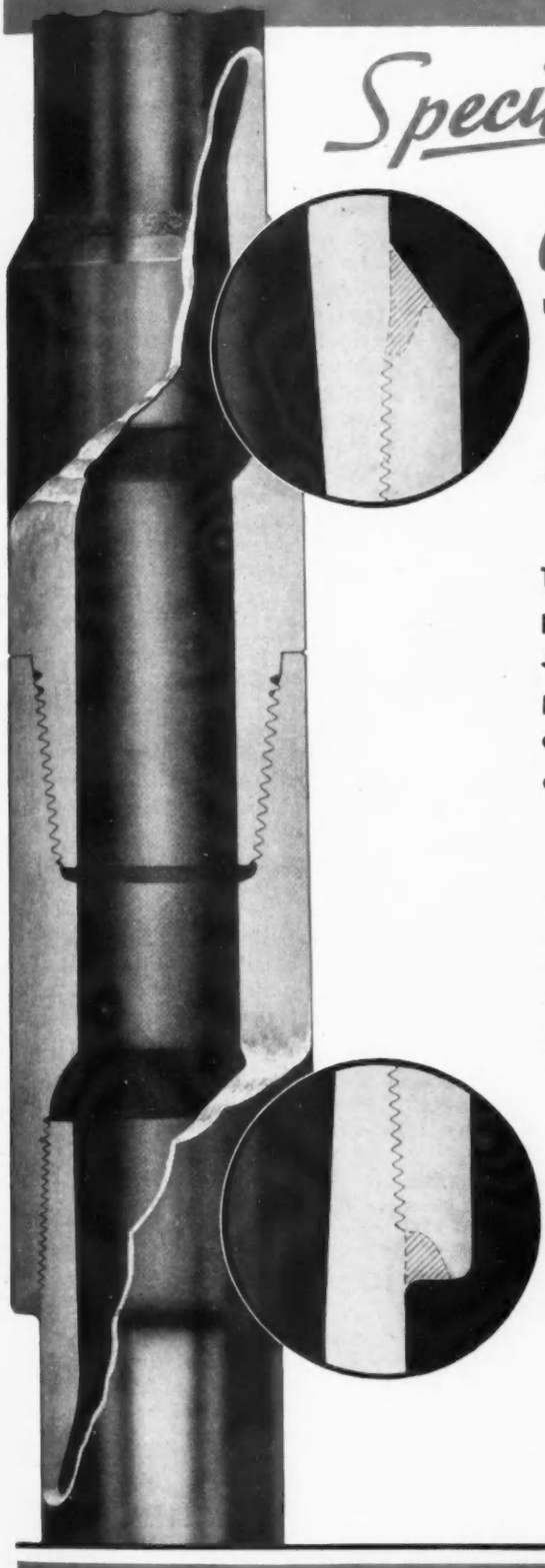

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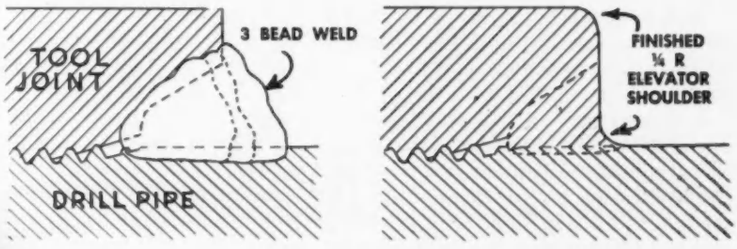

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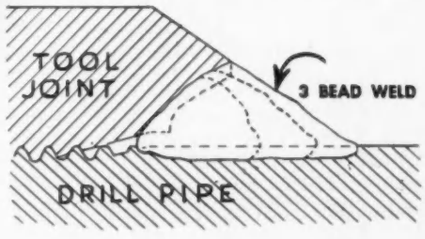

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TABLE 1
K-M-A Pool Oil Production Data

Unit No.	No. Acres	Accumulated Oil Prod. to Jan. 1, 1942 Barrels	Accumulated Oil Prod. Per Acre	Oil Produced 1941	Oil Produced 1940	Oil Prod. Per Acre 1941
1	5,035	5,439,860	1,080	1,477,685	1,858,949	293
2	2,071	2,631,354	1,271	506,588	868,294	245
3	3,591	2,595,421	723	1,153,098	893,110	321
4	6,916	9,648,058	1,395	1,841,026	2,639,661	266
5	6,346	8,107,650	1,278	2,211,693	2,532,131	349
6	6,118	6,420,273	1,049	2,345,578	2,452,288	383
Total	30,077	34,842,616	1,158	9,535,668	11,244,433	317

ing marketed and it was decided that in order to conserve this gas for future use and to considerably increase ultimate oil recovery, even though the recovery be at a slower rate, the gas should be returned to the producing horizon. The large number of operators producing from approximately 375 leases in the field made it necessary for the project to be cooperative, for only a few operators owned tracts sufficient in size to allow pressure maintenance to be applied to their leases alone.

In November, 1939, John F. O'Donohoe, then president of the North Texas Oil & Gas Association, issued an invitation to all operators in the K-M-A Pool to meet to discuss ways and means to obtain maximum benefit from pressure maintenance and gas return in the field. Eighty operators or their representatives attended. After those present had voiced their approval of a cooperative program, the K-M-A Pressure Maintenance Association was formed with an executive committee of 15 operators representative of all parts of the field. The duty of this committee was to complete the organization and open an office with a petroleum engineer in charge, the expenses to be shared by all operators in the field. The association's engineer was to act as chairman of the engineering committee composed of engineers of those companies operating in the field. Under this guidance the program became the largest cooperative endeavor of its kind in existence.

Since a large investment in gasoline plants, compressors, and distribution systems was involved, means were found to proportion the expense between the gasoline plants and the oil operators. The operators share the labor costs incurred in laying the return system and pay the compression cost for the high-pressure gas. Each operator pays in the proportion his wells bear to the total wells in his area.

These areas are called units. There are six of them, the dividing lines being drawn rather tentatively, endeavoring to keep royalty interests all within one unit, and to, as far as possible, divide areas of different producing characteristics. Each month the gas compression charges to a unit are calculated by multiplying the total high-pressure gas returned to injection wells within the unit, by an agreed amount for each thousand cubic feet. This is called the normal compression charge. Should there have been any input wells added to the unit during the month, a proportionate part of this cost, the actual labor involved but not including material costs, is added to the compression charge. This total sum is then put on a per-well basis by dividing it by the total number of wells in the unit. Each operator is billed the amount obtained by multiplying his number of wells by this per-well charge. In this way everybody pays a share regardless of ownership of input wells.

A well to be used for input after approval of the engineering committee and the executive committee is donated by the operator owning it with no reimbursement to him other than the distribution of the well's normal allowable among the other wells on the lease. The cost of laying the high-pressure line to the well and the cost of input gas is, however, shared by his neighbors.

Over $3,000,000 are now invested in gasoline plants and gas-return equipment. There are 99 gas-input wells. These at an average cost of $20,000 each, represent $2,000,000 additional investment.

The success of this plan depends upon the cooperation of all those concerned. Cooperation cannot end with a sharing of costs, for input volumes cannot be successfully varied and must be kept at a fairly steady rate throughout a 24-hour period. This means that the gasoline plants must have available a steady flow of gas, for they cannot store it from one period to the next; therefore, the operators must cooperate by producing their wells on a schedule. This is not convenient for it means that the operators must take their turn at producing at night, not the most desirable time, but necessary for the successful operation of the project.

A large majority of the operators in the pool are supporting the program. However, the areas which have not done so serve as an excellent example of what would have taken place in the remainder of the pool in the absence of this cooperative effort.

The original bottom-hole pressure was approximately 1750 pounds per square inch. There were 520 cubic feet of gas in solution per barrel of residual oil. The original gravity of the oil was 43 degrees A. P. I. The gasoline content of the gas was about three gallons per thousand.

As mentioned previously, the field is divided into six areas called

TABLE 2
Average Daily Oil Produced Per Well—Bbls.
1940

Unit	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20.6	28.8	28.5	27.5	24.7	20.7	18.2	17.0	19.3	23.3	18.4	16.7
2	22.4	32.8	32.1	30.9	28.0	22.3	19.2	17.8	19.3	22.6	19.1	17.1
3	22.7	35.0	35.0	32.5	27.3	23.0	20.3	19.6	22.4	26.2	21.2	19.2
4	20.0	27.3	27.4	25.7	24.3	19.6	17.0	16.2	17.7	20.2	17.0	14.9
5	20.7	27.7	31.6	30.0	26.7	22.3	19.3	18.0	21.9	26.7	20.6	18.2
6	21.8	33.4	34.5	28.7	24.5	24.3	22.4	20.8	24.8	29.7	23.1	20.3
Pool Average	20.9	29.6	30.7	28.4	25.4	21.7	19.2	18.0	20.9	24.8	19.8	17.6

1941

Unit	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.3	16.3	16.6	16.4	16.7	16.1	15.0	15.4	15.3	15.4	16.0	16.0
2	16.6	16.2	15.4	14.8	14.6	13.3	12.1	11.7	10.8	10.3	10.0	9.4
3	18.8	18.7	19.1	18.3	19.7	19.3	18.0	18.5	18.0	18.7	19.4	19.7
4	14.8	14.6	14.8	14.1	14.6	14.1	13.1	13.5	13.2	13.4	13.3	13.1
5	18.1	18.0	18.1	17.6	18.9	18.4	17.1	18.2	17.8	19.2	19.6	19.8
6	20.3	20.1	19.8	19.4	21.4	20.8	18.9	20.4	19.7	21.1	21.8	22.2
Pool Average	17.4	17.3	17.3	16.8	17.8	17.2	15.9	16.6	16.2	16.9	17.3	17.4

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TABLE 3

K-M-A Pool Gas-Oil Ratio Data—Average Gas-Oil Ratio for 1941

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Total Pool	1940 Total Pool
January	1528	2972	794	1704	620	586	1139	997
February	1675	2862	912	1776	678	592	1191	877
March	1616	3042	870	1968	683	630	1234	1086
April	1833	3382	955	2085	749	724	1347	1179
May	1906	3598	857	2062	802	771	1357	1023
June	2143	3803	873	2320	834	787	1462	1121
July	2228	3897	927	2374	829	835	1504	1134
August	2211	3976	975	2352	852	828	1490	1107
September	2331	4080	865	2393	889	847	1507	986
October	2223	4183	824	2360	788	773	1410	1006
November	2344	3976	683	2215	826	793	1388	1082
December	2064	3931	865	2251	853	804	1359	1149

units. The tabulations at the end of this report use these unit divisions for comparison between the different parts of the field and the field average. There are six tables. The first shows comparable size of units and total recovered oil to date. From the 30,077 acres comprising the pool, a total of 34,842,616 barrels of oil have been produced, or 1158 barrels per acre.

Table 2 shows the average daily oil production per well. It will be noted that the field average is the same the first and last of the year, although Unit 2 has declined from 16.6 barrels to 9.4 barrels. In Table 3 it will be noted that although the pool average gas-oil ratio is 1148 cubic feet per barrel, unit 2 averages 3931 cubic feet per barrel and had reached a high of 4183 cubic feet per barrel during the year. Table 4, which lists input gas volumes, shows this same unit to have returned the least volume of gas to the producing horizon.

Composite curves have been drawn from average data showing daily oil production per well, gas-oil ratio, bottom-hole pressure, and gas returned to the producing horizon per barrel of oil produced. For an analysis of procedure and results a comparison of Units 2 and 6 is suggested. The average figures of the other units must be weighed by such factors as different type of producing practices within the unit, varying volumes of injected gas in areas of the same unit, and average age of the wells. Unit 2 has been consistent throughout its area in producing with no regard for gas-oil ratio, optimum producing rates, or bottom-hole pressure drop. Until recently the only gas returned to the producing horizon was to one well in the extreme south end of this 2000-acre area, it having no effect on the major part of the unit. The curve for this area corroborates the theoretical predictions pertaining to increased gas-oil ratio and declining productivity in a depletion type reservoir with extremely low permeabilities and an undersaturated fluid. The slope of the gas-oil ratio curve is interesting. After reservoir pressure had dropped below the saturation pressure of approximately 1250 pounds per square inch the ratio broke sharply and increased at a high rate. Several changes in the curve are explained by changes in producing rates. The increase in ratio was the forerunner of declining productivity which brought the unit's 109 well average production to 9.4 barrels per well per day at the end of the year.

The area has, in 2½ years' time, with a recovery of 1271 barrels to the acre, lost an average of 1330 pounds bottom-hole pressure; and the producing gas-oil ratio, with a resulting loss of reservoir energy, has climbed to 4000 cubic feet for each barrel of oil produced.

A short calculation can emphasize the waste which has resulted from this operation. With a solution ratio of 500 feet per barrel and a daily production of 20 barrels, 100 wells should produce 1,000,000 cubic feet of gas per day. With a producing ratio of 4000 cubic feet per barrel, there was an excess of 7,000,000 cubic feet per day, or 8 times as much gas produced as was necessary for every barrel of oil produced. Seven barrels of energy was wasted. With a daily production as estimated at 20 barrels per well, 14,000 barrels per day, or 5,110,000 barrels a year were left in the formation without gas energy.

Unit 6 has been produced by an entirely different procedure. There are 6118 acres developed by 323 wells, 24 of which are being used for gas input. 6,420,273 barrels of oil have been produced. This is 1049 barrels per acre. The bottom-hole pressure has been kept at approximately solution pressure, and producing gas-oil ratio has been kept well below 1000 cubic feet per barrel. The production has been prorated from the beginning and current produced allowable is 22.2 barrels per well, compared with 9.4 barrels per well maximum production in Unit 2.

Since the early days of the field, production has been rigidly prorated. The controversial question of optimum rates has been and still is, of paramount importance. Pressure maintenance was begun as a result of a realization of the necessity for using all the energy contained in the oil. With only 520 cubic feet of gas in solution for each barrel of oil in the reservoir and with permeabilities so low that gravity drainage could not be expected to play an important part in oil migration to the well bore, every available method for moving oil through the formation should be used to advantage.

Until recently very little engineering thought has been given to optimum oil-producing rates. There have been many arguments presented to the regulatory bodies claiming waste because of low allowables, but seldom has any operator claimed that waste was promoted by the granting of too large allowables. The average operator has not wanted to discover that his wells should produce less oil per day, and has closed his mind to any such proposal or argument when and if it has been presented. There is every reason to believe that in some reservoirs high rates of flow promote conditions which cause a very inefficient usage of reservoir energy with a corresponding decrease in ultimate oil recovery.

When oil is produced from sandstone, there is from the beginning a differential in back pressure between the upper and lower parts of

TABLE 4

K-M-A Pool Input Gas Volumes

Unit No.	No. Wells	No. Input Wells 1941	No. Input Wells 1940	Input Gas 1941 MCF	Input Gas 1940 MCF	Total Input Gas to Jan. 1, 1942 MCF
1	266	17	12	571,567	226,859	957,418
2	109	4	2	129,019	28,415	162,571
3	194	19	13	486,433	132,746	664,611
4	365	20	21	873,048	532,159	1,634,278
5	334	15	12	425,130	257,715	697,081
6	323	24	18	820,875	292,262	1,125,437
Total	1,591	99	78	3,306,072	1,470,156	5,241,396

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TABLE 5

Total K-M-A Input Wells and Volumes of Gas Returned for 1941

	No. Input Wells	Total Gas Returned MCF	Average Gas Per Input Well Per Day—Cu. Ft.	Cu. Ft. Gas Returned Per Bbl. Oil Prod.
January	79	217,403	88,772	272.7
February	79	208,853	94,418	289.2
March	81	245,037	97,585	304.7
April	82	269,941	109,732	354.5
May	82	273,946	107,768	326.8
June	87	260,972	99,989	331.1
July	87	286,744	106,320	376.2
August	92	297,982	104,482	372.9
September	95	270,622	94,955	357.6
October	97	309,682	102,987	375.0
November	99	324,322	109,199	394.2
December	99	340,548	110,964	397.1
Total Gas Returned for Year	..	3,306,072	.....	....

Note: See Association's monthly report for individual well volumes.

any unit or section. There is less pressure on the top and subsequently more pore spaces void of oil. This condition will cause a high state of gas saturation and if diagrammed would be in the shape of an inverted cone. In time this cone broadens and a localized gas cap is set up around the well bore reaching back into the formation to some depth which is ever increasing and knows no limitation. The natural mechanics of oil production in a gas-control reservoir depend primarily for oil movement upon gas expansion from a dissolved state in the fluid. With this gas cap overlying the oil, gravity separation will further an upward migration of the gas into the gas-saturated zone in which it can travel to the well bore with little impedance. The result of this aggravated condition is a bleeding of the solution gas from the oil still in the pores of the formation and can be seen at the surface in extremely high producing gas-oil ratios. In pools with fairly high permeabilities this phenomena takes place but gravity drainage of oil into the bore hole keeps it from being as pronounced as in the tight sands such as the producing section at K-M-A. Here it is quite evident. We can use for example the area previously mentioned, which has been operated on the principle of producing at high rates with no regard for surface gas-oil ratios. This area has been producing for a year and a half with gas volumes as high as 10 times that of solution ratio. Today it is producing 9 barrels of oil per well. From this fact, but one conclusion can be reached. The gas rising to the surface necessarily comes from oil lying in the formation and not being moved into the well. There was no free gas and no injected gas, therefore unquestionably it is solution gas. Sometimes it is difficult to produce with a low gas-oil ratio and it may require means and methods beyond the reach of the ordinary producer and at some state in the reservoir's life, due to depletion and a normal gas accumulation, ratios may necessarily be high. Here we come to one of the chief benefits of pressure maintenance. Gas injection, if properly applied, will help fill the void made by removing oil, will take part of this job away from solution gas, and will promote easier movement of the oil to the well bore. An example of the effect of loss of solution gas is that K-M-A crude in its original state in the reservoir had a viscosity or fluidity approximating that of kerosene. After reduction of pressure and a loss of solution gas it is similar to the crude oil in your stock tanks. The difference in the amount of energy required to move these two different fluids through the formation to the well bore is quite evident and leads us to the conclusion that much oil is left in the reservoir because of wasteful dissipation of normal energy.

Results from pressure maintenance in K-M-A have as a rule been quite satisfactory. The ultimate result will be an enormous increase in total oil recovered. But selection and connection of an input well is but the beginning of the job. The first stages after initial gas injection are the easy stages. Gas-oil ratios will probably decline due to the assistance given to the natural reservoir moving forces. After a period which, of course recovers considerable fluid, gas saturation will begin to assert its characteristics by causing high producing ratios. Then again it is the problem of keeping gas production to a minimum so that recovery will be as efficient as possible. We frequently have complaints of gas channeling. Often, true channeling is confused with the coning previously described, a result of too little input gas rather than too much. In either case the remedy is retarded production which will allow the forces of capilarity, surface tension and gravity to become effective. The principles of back pressure should always be applied when producing a depletion type or gas drive reservoir. Too high a flow rate or excessive bleeding will result in channeling, whether natural or from gas input, and will cut ultimate recovery to an extremely low figure. It should be remembered that once gas is released from solution in the reservoir no appreciable amount can be put back. For all practical purposes, we must conclude that no injection gas goes back into solution with the oil. Whether or not pressure maintenance or repressuring is practiced or anticipated, all production should be closely watched for unnecessary escape of solution gas.

The study of reservoir performance is a challenge to the petroleum engineer. No matter what his routine job is, what happens underground is pertinent to his business and it is his duty to develop facts which can be converted into sound economic procedure.

Management support of the engineer's progressive thinking, and promotion of a constructive open-minded attitude in the field, makes a background for cooperative projects and more efficient methods of production.

TABLE 6

K-M-A Pool Gas Return Data—Gas Returned Per Bbl. Oil Produced—1941

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Total Pool	1940 Total Pool
January	346.4	131.3	335.9	378.7	158.4	251.3	272.7	29.3
February	336.2	162.7	390.5	391.7	176.0	266.0	289.2	26.2
March	319.8	157.8	392.0	403.5	185.0	320.9	304.7	39.5
April	422.4	186.0	482.0	483.7	188.2	340.9	354.5	79.7
May	387.5	206.5	419.1	455.7	183.4	304.4	326.8	106.9
June	373.3	202.7	421.1	476.7	183.5	313.0	331.1	128.2
July	428.1	279.0	457.5	566.8	198.4	339.1	376.2	164.5
August	397.8	316.0	423.9	529.0	197.7	389.4	372.9	214.9
September	359.1	292.3	392.3	537.9	211.2	352.1	357.6	202.3
October	409.9	319.3	471.6	532.8	193.0	372.5	375.0	179.4
November	415.1	461.5	465.4	491.1	207.9	440.8	394.2	209.3
December	438.5	571.8	395.2	464.4	217.6	469.9	397.1	246.9

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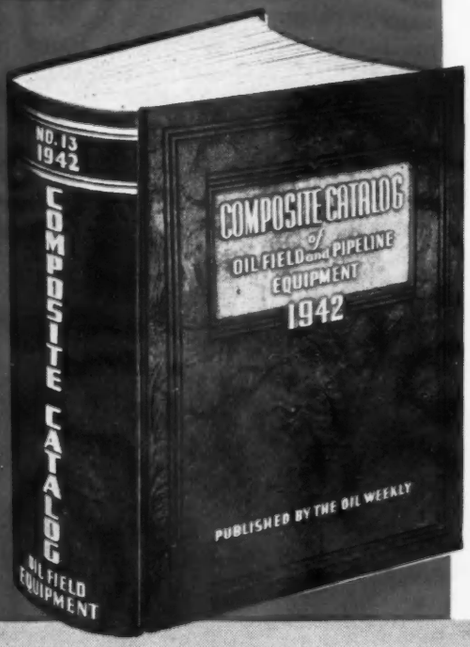

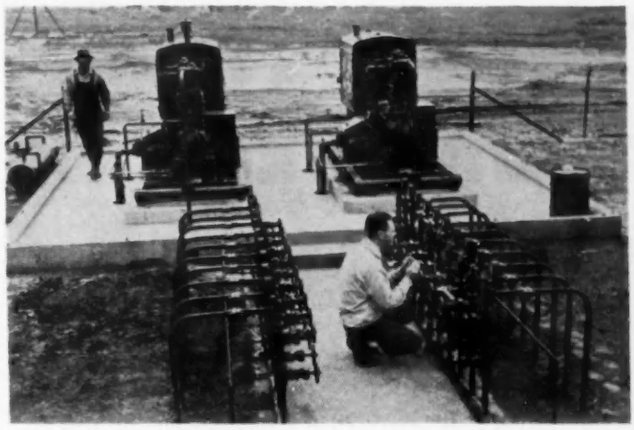

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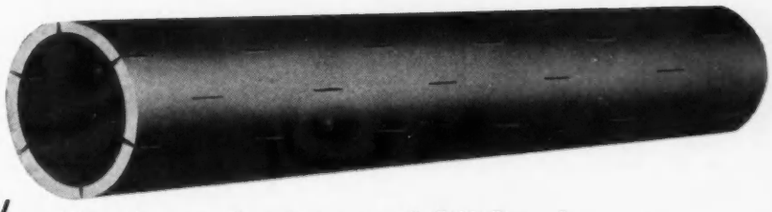

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KOBE

Haynesville Field Has Renewal of Activity

By GORDON B. NICHOLSON, Staff Writer

WITH unpretentious disregard for publicity and almost complete lack of fanfare, oil companies in the Haynesville field of North Louisiana, in recent months, have quietly uncovered a deep producing horizon which provides a sizeable reserve and which will probably occupy a large area. Haynesville, producing for 21 years and until recently generally considered to be slowly reaching the abandonment stage, has taken a new lease on life, now being the most active field in North Louisiana, and steady development possibly presages developing of an oil-producing area of greater extent than that of the old field.

On Thanksgiving Day, 1941, T. L. James brought in Aiken 1 as a flowing producer near the south edge of the old field. This well was completed in the Pettit lime at 5448 feet, while previous oil from the field was obtained from Blossom sand at 2800 feet. Before completion of the James well, impermeability of the Pettit lime led to the belief that it would not produce, but after acidizing with 1500 gallons, Aiken 1 flowed large volumes of clean oil through perforations from 5431 to 5436 feet. After cleaning, the well was shut in for storage, and when tested several days later, showed potential of 1500 to 2500 barrels on open flow, and 384 barrels daily through a ¼-inch choke. Gravity of the oil tested 40 to 41, and the oil was sweet. Shut in casing pressure amounted to 1100 pounds, while flowing pressures recorded were 450 pounds on the tubing and 900 pounds on the casing, bottom-hole pressure being 2123 pounds.

Top of saturation was located at 5404 feet, although at 5427 feet an 8-foot shale break was logged, separating saturation into two zones, with core analysis and electric logs indicating the upper section to have higher permeability and better promise of production. Upper two feet contained gas. James decided to perforate in the lower section, despite the generally pessimistic outlook that it would not produce; and casing was shot with 76 holes in this section with expectation of recompleting in upper zone if tests in the bottom failed. Location on the flank of the producing area contributed to skepticism among oil companies, although Aiken 1 was drilled on a lease which at one time had 12 wells producing from the Blossom sand, but which were abandoned in early days of the field. Completion of the well in the lower strata was a mild surprise to many operators who had previously discounted possibilities offered by that lime section.

Second Well Completed

It was almost one month later that the second well for the field was brought in. The new well was Ohio Oil Company's G. W. Taylor 1, 1¾ miles north of the discovery well, in the center of the old producing section, and on top of the high of the area, based on geophysical information. Taylor 1 was drilled below 11,000 feet a year before and abandoned with 6000 feet of 9-inch casing left cemented in the hole; but after discovery of Pettit production, a light rig was set up for tests in this formation, and casing was perforated from 5218 to 5230 feet with 47 shots. Original plans called for perforating with 100 shots, but due to strong gas pressure, shooting was halted. After acidizing with 3000 gallons, and with the hole full of water, the well tried to blow in, but, brought under control, it flowed 70 barrels hourly through a ½-inch choke. Chokes of various sizes were tested, with flow estimated at 3000 barrels daily on open flow. Gas-oil ratio was 350 to 1, while pressures recorded were 900 pounds on the tubing and 700 on the casing. Bottom-hole pressure was 2240 pounds, gravity of oil 41 to 42, and bottom-hole temperature 179° F. Original production contained no salt water. Markers on well ran approximately 200 feet higher than on the James well, records made when the hole was drilled a year ago showing presence of 30 feet of variable-saturated lime.

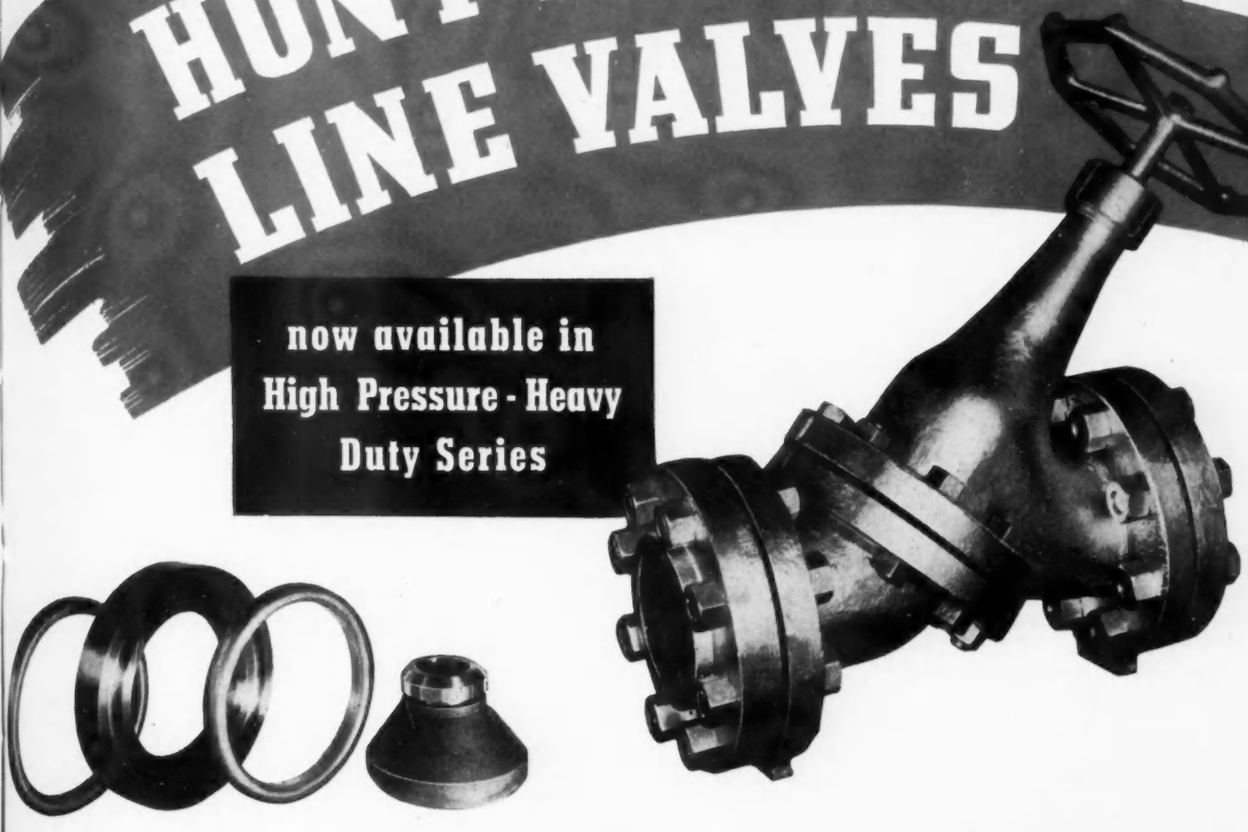
Pettit lime constitutes a 100 percent lime body having oolitic qualities, composed of spherical particles of regular shape resembling minute buckshot, and highly porous. It is the deepest of the Glen Rose members, and is found also in the Lisbon, Sligo, and Chapel Hill fields.

With completion of the second well such distance from the discoverer of Pettit production, potentialities of the new field were realized. Almost immediately after flow was turned into tanks, several locations were announced, the first being Blackwell Oil & Gas Company's Milner 1, about ¼ mile north of the discovery. Ohio Oil Company's first three locations were spread over a large area, forming a triangle having sides one mile long, with prospect of quickly ascertaining size of the new structure, and the company immediately moved three rigs into the field. Since then, these and additional wells have been completed and other tests are now being drilled. All are good producers with exception of one dry hole on the edge, and structural information obtained from the tests indicate that the size of the new producing area may be even larger than that of the original field which included at one time approximately 7480 acres, was nearly 5 miles square, and had 765 producing wells.

Haynesville is in northern Clai-

HUNT ALL-STEEL LINE VALVES

now available in High Pressure - Heavy Duty Series



Hunt standard All Steel Line Valves, the valve that has established records for longer life, lower costs and minimum trouble, now have as a companion the Hunt Heavy Duty Series for higher pressures. This new series valve is available in 2- and 4-inch, 4,000 and 6,000 pounds test range.

The secret of the Hunt Heavy Duty Valves' dependability and economy is the reversible disc and seat which gives double the life of ordinary valves. The seat is held in place by two standard API rings. Being of lower brinell hardness than the disc, these rings take the wear, assuring positive seal as the disc and seat wear.

Hunt Heavy Duty Valves, like the standard series, may be repacked under pressure, as bonnet top has a machined recess which seals the valve around the stem when it is in full open position. To renew or reverse the disc or valve, it is only necessary to remove the eight flange bolts and raise the bonnet sufficiently to clear the seat.

Put Hunt Valves on the line . . . and watch valve maintenance go down, dependability up!

Write for a complete description of HUNT ALL STEEL VALVES, Heavy Duty or Standard.

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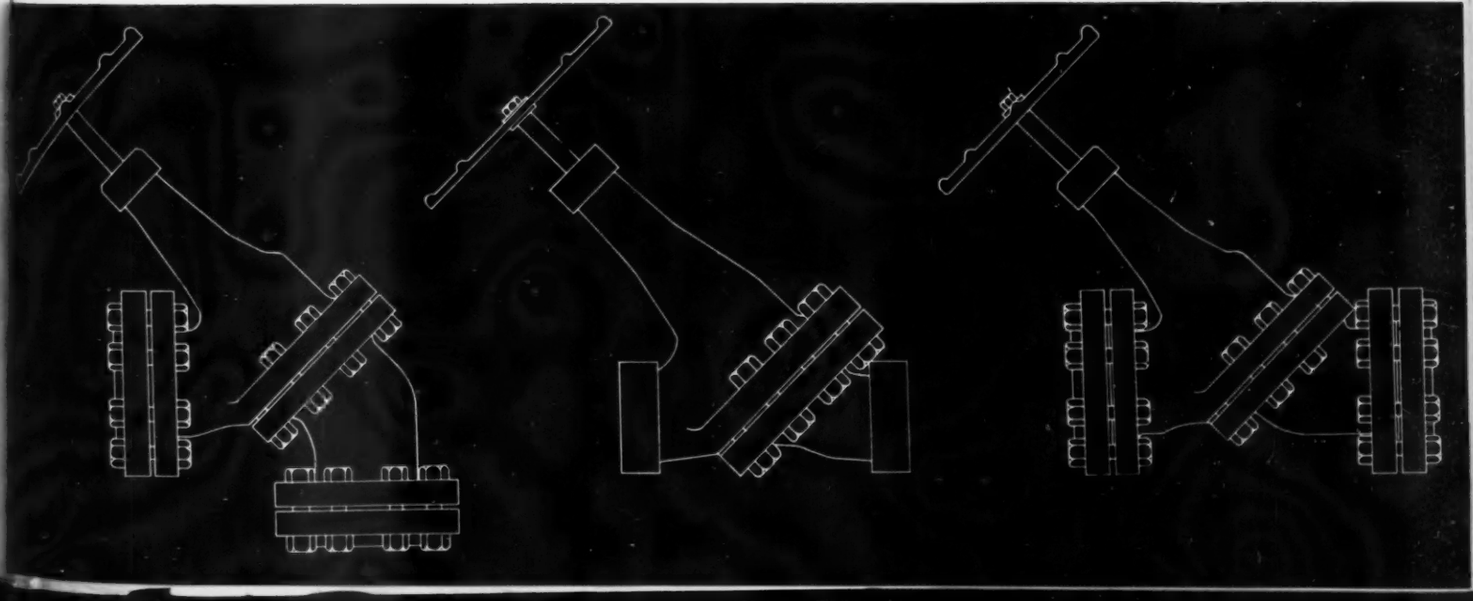
DEPENDABLE . . . all ways!

As shown in the illustrations below, Hunt Heavy Duty Valves are space savers, too. Unnecessary connections are eliminated, and the compact design reduces space requirements to a minimum. Make your own combinations.



borne Parish, near the Arkansas line, on an imaginary line running from Shreveport to El Dorado, Arkansas, and only 35 miles from the latter city. The field is two miles northwest of the townsite of the same name, in gently rolling country spotted with pine trees, and having soil composed chiefly of red clay. Located on U. S. Highway 79, which runs northeast from Shreveport to Memphis, the town is accessible from principal important centers by road for hauling equipment or traveling to the field. The L. & A. Railroad serves Haynesville as a further boost for transportation, and, supplemented by connections with other railways, furnishes adequate freight facilities from virtually all directions.

The Haynesville field was discovered in March, 1921, with completion of Smitherman et al's Taylor 2 at 2850 feet in the Buckrange sand, having initial production of 3000 barrels daily. The prospect was first recognized by surface geology which indicated presence of an anticlinal dome. Exploitation after discovery showed gas in the Glen Rose member of the Trinity at 4330 feet, and a non-productive oil sand was found below 4500 feet.

During the 21 years of producing from the Blossom sand, a total of 71,631,940 barrels of oil have been removed from the big reservoir. Life of the old field is estimated to be good for several more year's economic operation by virtue of successful application of a unitized gas-drive system which has reduced effectively normal rate of production decline. Blossom sand reserves were estimated at over 104,599,000 barrels when the field was first developed, and it is expected that reserves of the new discovery will approach the same figure.

Development of the New Zone

Location for Pettit tests have been spotted all over the structure, with apparent attempts made to determine limits of the new field as rapidly as possible. Ohio Oil Company's wells are spaced widely, and other locations announced are scattered over a broad area. It is evident that the new structure may extend beyond limits of the old field.

However, number of wells is limited in compliance with wide spacing now decreed by the State Conservation Commission. This regulatory body recently issued field rules to the effect that, in view of current efforts to conserve materials in conformity with government regulations, spacing allotted for the new area is 1 well to 80 acres. Tests are to be drilled on alternate 40-acre tracts, checkerboarded to permit drilling on each 40-acre tract if spacing rules are later changed to 40 acres when materials become available. Under 80-acre spacing, tests may be drilled in northeast or southeast of any quarter section. Allowable granted to new wells is 200 barrels daily.

Wells completed to date have had low gas-oil ratios, all having been completed in the lower section of the producing zone where little gas is present. Water production is negligible, and its disposal is easily handled by evaporation pits. Low-pressure Christmas trees and separators are used throughout, and ordinary steel tanks are sufficient for storing production as the oil is sweet.

Semi-heavy duty steam rigs are used in the field, usually equipped with three boilers which are supplied by water wells and burn gas. Drilling mud requirements are low, as pressures encountered are mild, but aside from the surface hole which is drilled with drag bits, formation is hard and rock bits are used. Drilling to completion averages less than 30 days. All wells are acidized to open the tight formation, and, while swabbing has been anticipated, usually wells flow freely before the swab is run, or at least after only slight agitation.

Pipe line outlets available or serving include lines of Standard Oil Company of Louisiana, Gulf Pipe Line Company, Magnolia Petroleum Company, Atlas Pipe Line Company, and the Arkansas Fuel Oil Company, in addition to tank car facilities which may be provided by the nearby railroad. Principal leaseholders in the new field include Ohio Oil Company, Arkansas Fuel Oil Company, Blackwell Oil & Gas Company, Miller & Bourn, The Texas Company, Shell Oil Company, and Magnolia Petroleum Company.

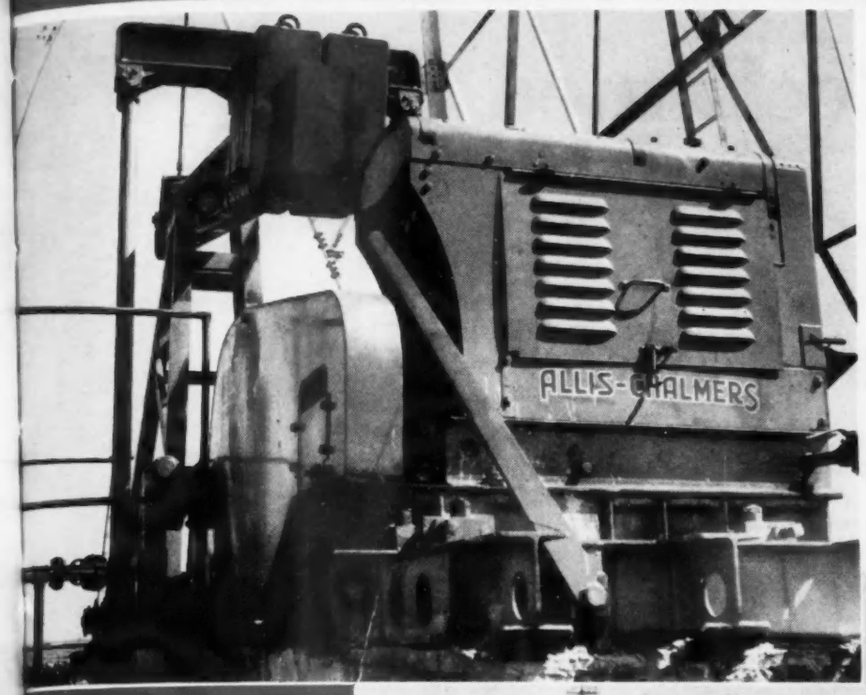
★ OIL IS AMMUNITION ★

Future of the Field

Prospects for continuance of production from this field are bright. Indications are that wells will enjoy maximum flowing life as result of having low gas-oil ratios, and with the highly cooperative conservation practices already adopted, bottom-hole pressure should be maintained because of low fluid and gas withdrawals. Operators in the field are experienced in value of unitized conservation, and success of bottom-hole pressure maintenance in the Blossom sand is a conspicuous example of its benefits. Early unitization in upholding pressures may be expected in development of the new producing zone, especially with unitization already developed in the upper sand, and with a large line now serving the field with gas from the Cotton Valley field 22 miles distant. Availability of gas with little additional expense should encourage pressure maintenance; and when flow of wells ceases, gas obtained from this source will be available for artificial lift.

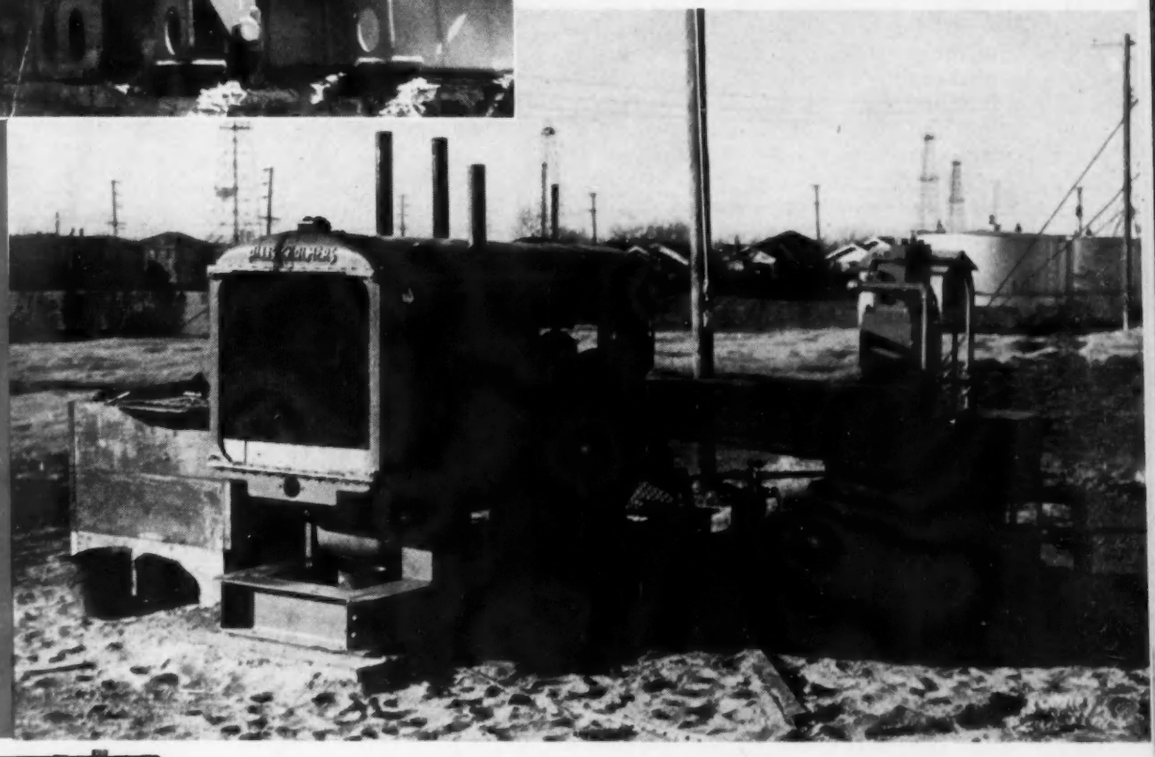
Finding of deep production at Haynesville opens possibility of similar production from other fields in North Louisiana, as many, including the large Lisbon field, are structurally similar to Haynesville. Numerous deep tests which were abandoned because of tightness in lime formations are now eligible to share in the new production by acidizing, and deepening of old wells in the Haynesville field to the new horizon offers interesting possibilities. Added importance is placed on this production as much of it comes from the least productive portion of the Pettit, and wells now producing from it will be plugged back, as production declines, for recompletion in the more promising zone. While development will be conservative in keeping with present efforts to save materials resulting in curtailment of drilling and restricted spacing, ultimate recovery from the new area should be considerable, by utilizing conservation methods which were unknown when the shallow field was discovered. Wells will flow for longer periods, and life of the old field should be materially lengthened.

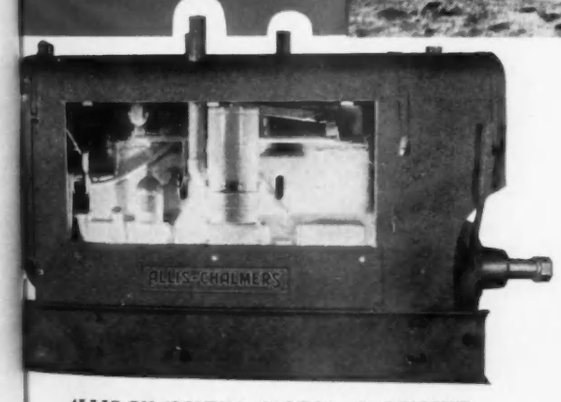
A-C ENGINES for Surface and Sub-Surface PUMPS



Above: Allis-Chalmers Model V Engine. Piston displacement, 201 cubic inches. Torque 128 ft. lbs. Continuous operating range 800-1300 r.p.m.

Right: Allis-Chalmers Model L Engine. Piston displacement, 844 cubic inches. Torque 590 ft. lbs. Continuous operating range 600-1200 r.p.m.





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Abandoned Wells Can Be Reclaimed

By F. R. COZZENS

PRICE regulations, and various other factors relative to war disturbance have made it necessary to pull out and abandon hundreds of wells in the eastern stripper oil fields. Much publicity and criticism has followed this widespread salvage especially in districts where oil was still being produced at a margin of profit, and not a few producers have been openly accused of putting private aspirations ahead of the emergency at hand. In some quarters this censure might be justified were it not for the fact that the majority of these salvaged wells can, and will be put back into production at some later date. Many farsighted operators are thus keeping tomorrow in mind while doing salvage jobs that are deemed necessary today.

After an oil well has been sealed off at the top of the pay sand and the casing lifted, preparatory to abandonment, only certain obstacles hinder its being reopened at any future time. These obstacles or restrictions are shale and clay formations which cave in and obstruct the bore-hole; foreign bodies, such as pieces of pumping equipment; and lastly, the common shaft-like depression at the surface which often prevents the proper alignment of drilling machinery over the hole. Such impediments are common knowledge to the average operator, and he generally takes the first steps toward reclamation before the casing has been lifted.

With possible reclamation in mind, the operator's initial act is to make certain that a plug of the right length and diameter has firmly sealed the top of the sand at the bore opening, against water which trickles constantly down the walls of an abandoned hole. If the casing has been cemented at any point and must be cut off, he makes note of the fact, along with wire-line measurements of its location. He records in his log book also, information about any stray pieces of iron or metal which may have been lost in the well during its period of production.

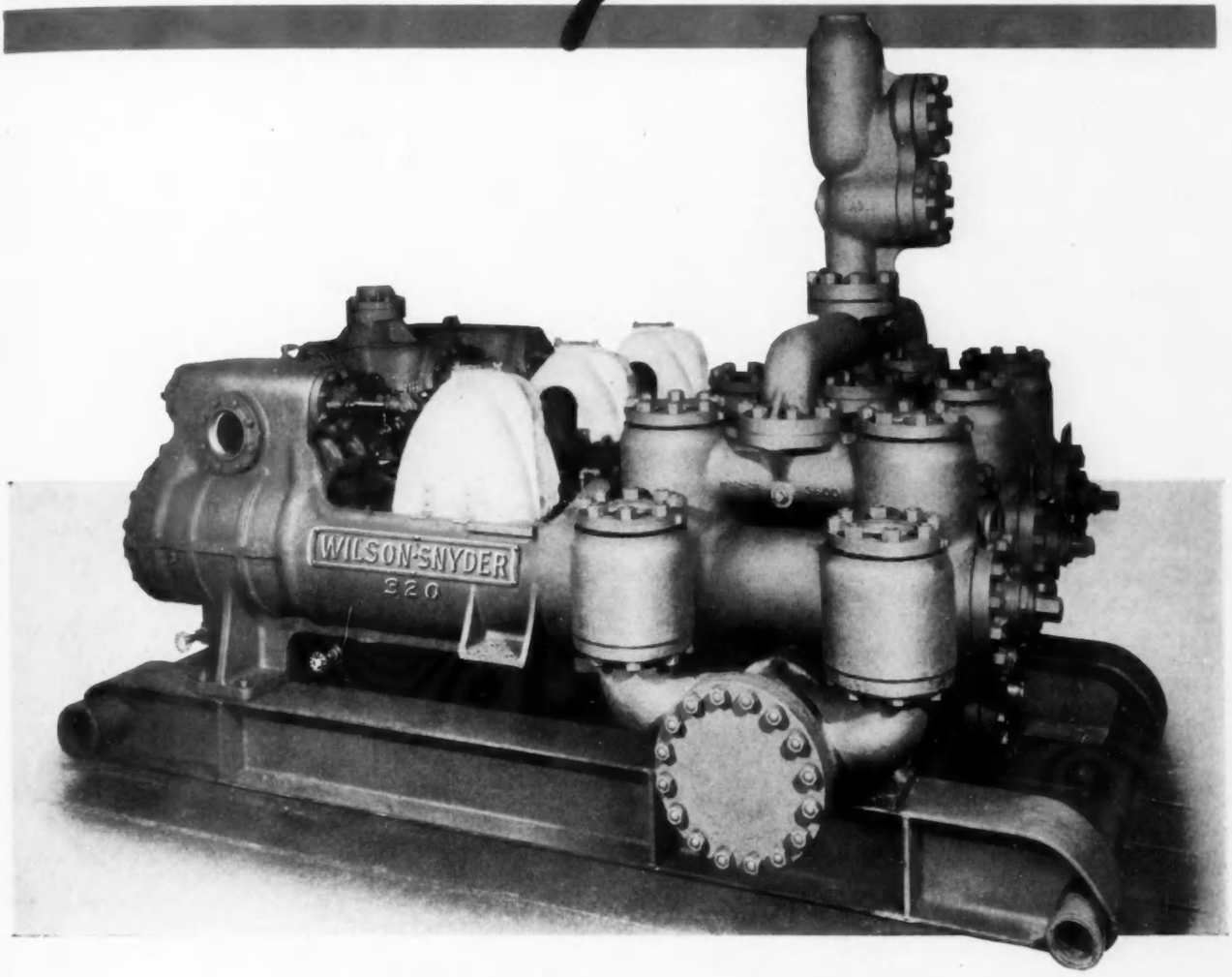
Since a well is cased to shut off water and caving formations while drilling progresses, it is readily understood that these forces held in check by the casing while the well was in production, are made active again when the casing is removed. It is a geological fact however, that while water stimulates the caving of shales and clay, this condition seldom becomes troublesome in a drilling well so long as a heavy volume of water is carried, but caving becomes serious when the water is agitated and removed by bailing. The salvage operator makes use of this principle in preserving the walls by slowly filling the hole with water after the casing has been lifted. This is usually done through a pipe line, temporarily lain to the job. The volume of water may remain in the hole indefinitely, and should extend to within a few feet of the top. The purpose is to "plaster" the face of shale and clay formations, which has been freshened by removal of casing, and to counteract any sudden inrush of water from underground streams along the walls which would invariably cause caving.

After the final section of casing has been removed from the hole, a block of wood about four feet in length, circular in shape and with a diameter slightly larger than that of the bore hole is brought to the job. Lengthwise, through the center of this block or core, a short piece of pipe is driven (3 feet is average length). The core, with pipe extending upward is then pressed into the mouth of the salvaged well, and driven down until the top of the pipe is about three feet below the surface of the ground. Earth is firmly tamped down upon this core which now becomes a bridge, until the hole is filled level with the surface, and the abandonment job is completed.

Later, when in the course of months or years it is decided to reopen this abandoned well, the recovery operator locates the spot, and by digging away the tamping, uncovers the pipe. A plumb bob and line inserted in the pipe top reveals the exact center of the old well, and drilling equipment is rigged accordingly. The wood plug or core is easily broken up by the drill, and from thence on, the hole is usually found remarkably free of spoil. In a test reopening of 33 abandoned wells in Southeastern Ohio, the amount of cavings or spoil averaged less than 40 feet, per 1000 feet of hole. Ten of these wells had been abandoned for five years and longer. Where pieces of former pumping equipment are known to be in the hole the reopening problem is more difficult, but if a record of the well with accurate measurements has been kept it is usually possible to force the obstruction into the walls with the drill, and after so doing, use casing of smaller diameter. Some operators equip such wells with heavy weight 2-inch tubing, bedded in cement at the top of the pay sand.

In comparison with the number abandoned, only a small percent of salvaged wells in the eastern stripper fields will again be made into oil producers. The big majority of such wells will be reopened and used as induction wells for air or gas in repressuring. Many more will be utilized in water-flooding, and other oil recovery methods. Tests conducted over wide areas of stripper field territory prove that abandoned wells can be reopened for little more than half the costs of drilling new ones, provided precautions were taken at time of salvaging. Considering the varied ways in which they may be utilized in oil recovery, the operator with an eye to the future will make such wells an asset to both himself and the industry.

leads again . . . !



SPECIFICATIONS

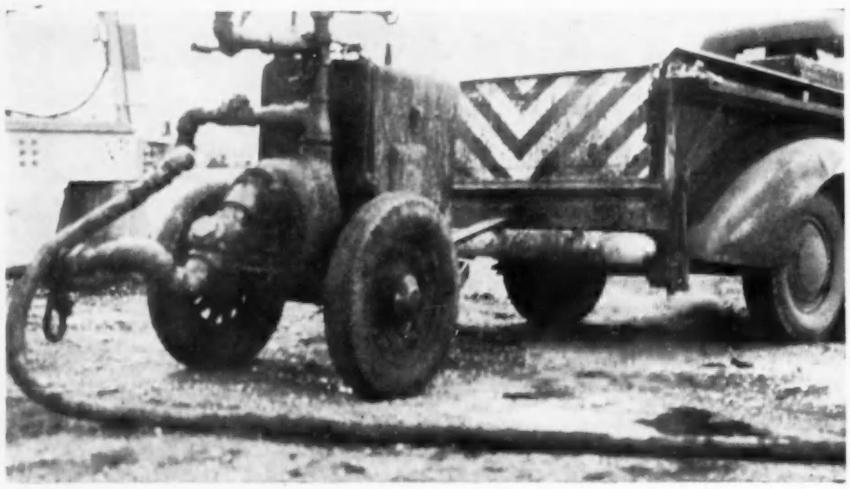
Steam Cylinder Diameter by Stroke	Inches	18 x 20
Standard Fluid Liner Sizes (Di-Hard)	Inches	6, 7
Hydrostatic Test Pressure (Discharge)	Lbs./Sq. In.	5000
Rated Fluid Working Pressure	Lbs./Sq. In.	3000
Rated Steam Pressure	Lbs./Sq. In.	350
Theoretical Displacement at 50 r.p.m., with 7-in. Liners (Piston Rods Deducted)	G.P.M.	922
Theoretical Displacement at 50 r.p.m., with 6-in. Liners (Piston Rods Deducted)	G.P.M.	657
*Minimum Stalling Pressure at 300 lbs./sq. in. Steam Pressure with 7-in. Liners	Lbs./Sq. In.	2000
*Minimum Stalling Pressure at 300 lbs./sq. in. Steam Pressure with 6-in. Liners	Lbs./Sq. In.	2700

*Extensive testing has proved that due to its very high mechanical efficiency the No. 320 Triplex Pump will operate at discharge pressures averaging 82% of the stalling pressures with pump operating at 45-50 r.p.m. This is considerably higher than is the case with conventional duplex steam slush pumps.

PRACTICAL OPERATING *Hints* FOR

1. EMERGENCY EQUIPMENT

Complete Low-Head Pumping Unit Clears Flooded Areas with Temporary Set-Up



Self-contained on two-wheeled mount, with adjustable third support when not attached to service truck, this portable pumping unit is mobile and highly effective for low heads.

FOR emptying sump pits, unwatering rig cellars and meeting the numerous demands for portable pumping equipment around the operations, one company uses a self-contained pumping unit, gasoline-engine driven, and mounted on a short axle with oversize wheels for stability.

This unit carries a stiff tongue which attaches to hitches at the back of the service trucks, permitting it to be shifted readily to the desired location, the truck serving to carry the lengths of suction and discharge hose used to tie in to supply and discharge facilities. A bracket mounted at the front of the unit is arranged so as to swing down and form a third support, permitting the unit to be operated after the towing truck has been disconnected.

2. FLOW LINES

Stabilization Blocks Snub Line Vibration

HIGH pressure flow and lead lines are at times subjected to vibrations, which, if not checked or at least dampened, may cause injury to the line and fittings.

Such lines, when they must be laid along the ground may be prevented from vibrating, by partially setting them, at critical points along their lengths, in small blocks of cement. The cement form, set 8 or 10 inches below the ground surface, measures approximately 12 by 15 inches, and is tapered outward toward the bottom to give stability to the finished block. The level of the cement is brought up to the point where the line is half buried, and the cement is allowed to set while the line is quiet.

Such blocks serve both to support and dampen vibrations in the line; are generally cheaper and easier to install than tie-downs made up of anchor posts and cable; and present a neater appearance to those installations. A particular advantage at the present time is that no iron or steel is required.

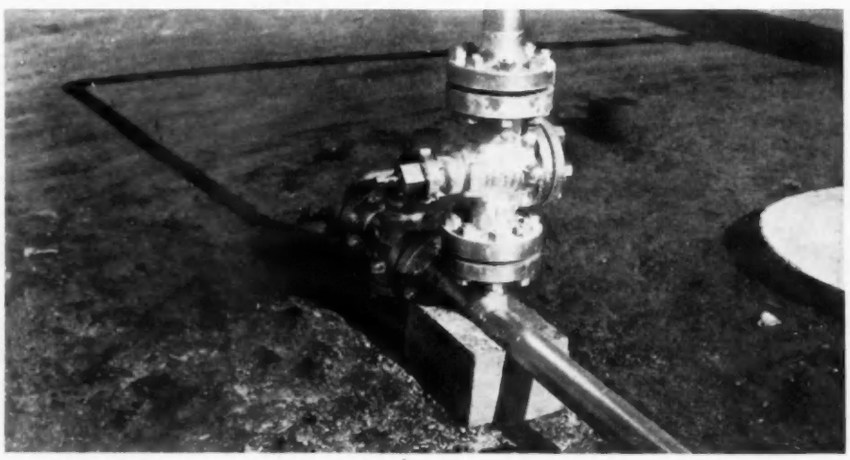
Salvage of the lines anchored in this manner is 100 percent, since the concrete may be chipped away from the pipe with little difficulty.

3. GAUGING

Shelter Aids Gauger in Shakeout Runs

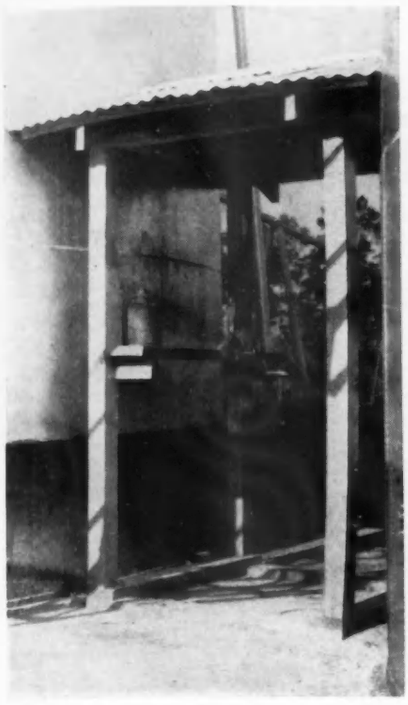
TO PROVIDE protection from the elements and at the same time to furnish a place for mounting a centrifuge or other equipment, one operator in a Central Louisiana oil field constructs a small shed at each tank battery, occupying space between the gunbarrel and the first tank of the battery. The pumpers, after taking samples of the well fluid either from the separator or from one of the tanks, are protected from rain and bad weather while testing the fluid, preventing deposit of rain water or other foreign substances in the samples.

The sheds are each built on a framework of four upright pieces of 4 x 4 timber, nailed to a base of 2 x 4 boards, allowing the structure to rest flat on the ground. Tops of the uprights are held together by 2 x 4's, and a peaked roof frame is made of the same material. Over



Formed around the pipe and set in the neighborhood of branch lines or heavy fittings, these concrete supports are cast in place and adequately curb shifting and vibrational stresses.

THE PRODUCTION MAN...



Set between tanks, this shed covers gauger's shelf and removes weather factor from work.

this frame, corrugated iron sheets are fastened.

On one side of the structure, a 4-foot shelf is erected about three feet above the ground, and on it is bolted the centrifuge for shakeouts. The shelf is also large enough for other small equipment which the pumper uses, such as gauges, rags, and chemical containers. The roof offers protection against rains, saving unnecessary wear on equipment, adding to comfort of the pumper, and preventing contamination of oil samples.

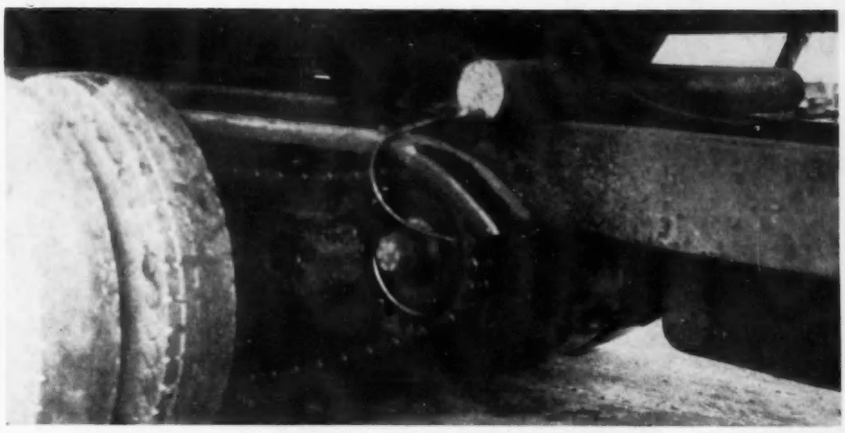
4. *TRUCKS*

Auxiliary Lube Drips Protect Chain Drives

THE problem of maintaining proper oil supply on the final drive chain between jack shaft and truck wheel has been solved by one company through the mounting of a reservoir on the frame just above the sprockets. This reservoir, formed from a section of pipe sealed with welded-in heads, carries needle valves and short sections of curved copper tubing which carry any determined quantity of oil to the drive chains.

By setting the tubes slightly below center of the section of chain wrapped around the sprocket, the oil feed is directed at the point where the chain begins to go slack, insuring immediate entrance of the lubricant into the spaces between bearing surfaces as soon as load on them is released.

Use of flexible tubes permits the readjustment of the set-up in case of derangement through accident and does not offer serious hazard to the chain should the tube become entangled with the chain and dragged through the drive.



Pipe tank with copper tube feeders and needle valves permits graduated feed of auxiliary oil to chains at slack point on drive sprocket and greatly prolongs unit life in hard going.

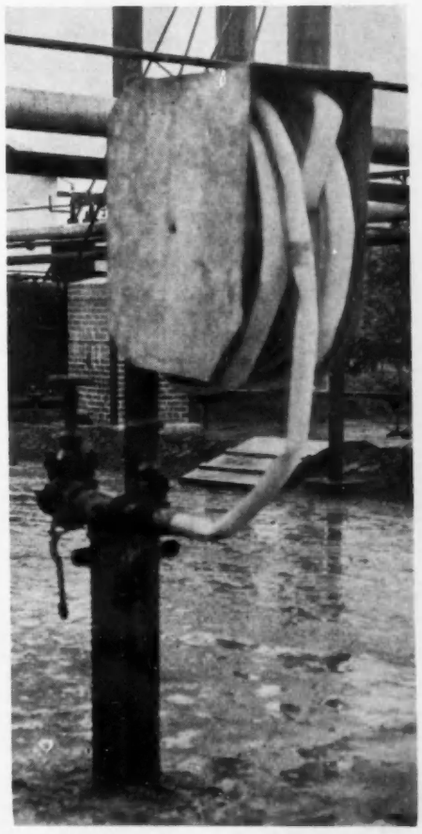
5. *FIRE PROTECTION*

Covered Hose Support Prolongs Service Life

CONSERVATION of canvas hose usually furnished for fire protection requires some sort of housing in which the hose is protected from the weather between periods of actual use, yet is not so tied up as to be difficult of access.

One method of storing hose is to mount a reel on a standard at the hydrant, with clip for the nozzle, and with crank extending out from the housing so that the hose may be rewound in position to be unreeled simply by pulling at the exposed bight.

Since no canvas hose drains completely, there is apt to be a small accumulation of water at the end next the hydrant. This water may be effectively drained off by tapping a ⅛-inch pipe connection into the hose nipple on the lower side, screwing therein a bleeder cock. This cock may be left open, and if not closed when the hose is required for fire protection, the loss of water is so slight as to be negligible, and the installation will pay for itself many times over.



Sheet metal housing over reel provides storage without disconnecting the hose from hydrant.

The "Rubber Doughnut"

A FEW OUNCES OF RUBBER THAT SAVES MANY POUNDS OF STEEL!

Split bonnet, held together by two alloy steel bolts, facilitates renewing stem packer.
Gate stem reveals extent of wear on resilient flow-way insert when valve is in closed position.
Heat treated alloy steel gate shown in closed position embedded in the resilient flow-way insert. In open position, it is retracted completely out of the flow-way.
Lip type stem packer requires no packing gland
Renewable resilient flow-way insert which absorbs cutting action of abrasive-laden fluid and which may be replaced in the field quickly and at low cost. Note how the resilient insert provides a pressure-tight seat for the gate and seals the two-piece valve body.
Replaceable alloy steel wear ring which protects the hub ends against cutting.
Hubs with any type of end connection desired are interchangeable and are attached to the body by interlocking shoulders and grooves. Loosen the body bolts and the hubs will swivel like a union when making up in a manifold.
Forged steel body in two pieces to facilitate changing the flow-way insert

This renewable resilient flow-way insert (alias "rubber doughnut") for Cameron Flex-Seal Mud Valves was famous for its efficiency and time and money saving features long before steel joined the ranks of critical materials. But now that every pound of steel must be carefully conserved the few ounces of rubber in the "doughnut" is of even greater value because it slowly absorbs the cutting action of abrasive-laden fluids, and thus prevents the erosion that quickly claims the lives of so many conventional mud valves.

Rubber (or synthetic compound) is itself critical, but since the use of a few ounces in this unique resilient flow-way insert is largely responsible for the elimination of 93% of the maintenance required by other types of mud valves and stop cocks there is a considerable net saving of critical materials realized. For example, $0.13\frac{1}{2}$ per thousand feet of hole for maintenance on Cameron Flex-Seal Mud Valves compared to $2.25 per thousand feet of hole for maintenance on competitive types of valves under identical conditions.

Study the cut-away view of a Cameron 6,000-Lb. Test Flex-Seal Mud Valve shown at left and note its sturdy construction and sound mechanical design. This valve is also available in 4000 and 2000 Lb. test pressure models, which employ essentially the same basic principles. See your Composite Catalog for complete details, or literature will gladly be sent on request.

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Systematic *Scrap* Program Does Good Job for Large Company

By J. V. HIGHTOWER, Staff Writer

STANDARD oil Company (New Jersey) is pursuing a systematic scrap reclamation program which encompasses all the company's affiliates and includes the production, refining, transportation and marketing divisions. Regular procedures for the salvage of materials have been followed for a number of years, but this program has been intensified since last January in an effort to increase the nation's supplies of scrap materials. The company is sending periodical reports on results to the War Production Board based on progress reports received from affiliate organizations, which include The Carter Oil Company, Colonial Beacon Oil Company, Oklahoma Pipe Line Company, Standard Oil Company of Louisiana, Standard Oil Company of New Jersey and Tuscarora Oil Company, Limited.

50 Percent More This Year

The general objective of the program is "to assist the national effort by making available tonnage of scrap iron and steel, non-ferrous metals, rubber, cotton and woolen rags, waste paper, etc., by the improvement of existing methods of scrap collection and scrap sale and/or by possible adoption of more radical dismantling or scrapping programs." Early results indicate a good showing will be made. Probably 50 percent more scrap will be salvaged during 1942 than was salvaged last year.

In planning the scrap program, three basic factors were established. These were: All materials and plant equipment not in active service should be studied for salvage except storehouse active stock, "insurance" items, purely temporarily idle items, etc.; questionable idle items should be presumed free and available unless otherwise established; and the amount of savings to be directly realized through prices received, although a factor requiring consideration, should not be the dominant one.

This intensified study includes: Existing methods and scopes of collecting various kinds of scrap in each of the works or divisions; existing methods of operating the reclamation and scrap disposal yards — segregation of scrap by classes, kinds of materials, study of amounts on hand, etc.; determination and disposal of obsolete warehouse stocks; and idle plant equipment over, on or under the ground.

In order to keep track of the rate at which scrap is being collected and marketed, monthly progress reports are made regarding the following:

1. Lists of tonnage disposed of. Data are divided into ferrous metals, non-ferrous metals, rubber, paper and any other major items. Information to show to whom the materials were sold, location of the buyers, and tonnages delivered. Materials removed by dismantling contractors should be listed as well as those junked directly by the company.
2. Tonnage of scrap disposed of during 1941, showing separate data for ferrous and non-ferrous scrap. The 1941 figures are considered useful for a comparison. Only one such report necessary.
3. A preliminary estimate as to what the total tonnage of scrap might amount to during 1942 as a result of the program.
4. A report of steps taken each month, list of items that have been considered, with decisions reached, any unusual or interesting things done or ideas developed which will help the program.

Periodical Reports Made

Periodically, a composite report is made summarizing the data submitted in the monthly statements. In turn, the company submits to the War Production Board reports showing statistical data and other relevant information.

The intensified scrap reclamation program is showing good results. One company, in its report for February, declares, "Activity was given an initial impetus to all departments by a discussion of the subject at a series of foremen conferences. The acceptance of the spirit of the program by all foremen was very encouraging and every indication is that every man in the refinery will do his part to cooperate and participate in all programs we have proposed."

The above company is pursuing its reclamation and scrapping problem energetically. During February, a scrap pile of boiler tubes, still tubes, condenser tubes, obsolete pumps, etc., was worked over with the result that 190 tons of iron and steel and 3600 pounds of brass were sold as scrap. Also disposed of were 10,500 pounds of paper from sales and office files. Additional obsolete electrical equipment and pumps were marked for scrapping. An interesting statement on the profitability of reclaiming materials was made when it was declared that $3,300 worth of pipe fittings and valves was salvaged and reclaimed at a total labor cost of only $660. Economy is being practiced in the company's laboratory, where cork stoppers, tin cans and other containers are being cleaned and reused with appreciable reductions in new purchases. All idle vessels are being studied for possible use or disposal in the plant. Much idle piping has been marked for dismantling and reclamation. About 1200 feet of idle 8-inch gas line has been converted to crude service with a saving of about $3,500 in labor and materials.

Scrap is not being centrally collected or marketed by a single agency. It is considered more practicable in this particular program that the companies involved should handle their work individually.

Exchange of Ideas Help

The exchange of ideas between the various companies is bringing up many interesting points. For example, studies are being made to develop suitable cleaning facilities in order that many seamless tin cans for asphalt samples may be recovered instead of being thrown away after use. In one company 1200 pounds of rags used per month is being cleaned and laundered instead of thrown away as was formerly done. Reclamation standards are being reviewed; for instance, whereas 6-foot lengths of pipe had been minimum lengths reclaimed, the minimum may be lowered to 3 or 4 feet. Sheets from crude stills being dismantled are saved and rolled flat in boiler shops for use as miscellaneous plate. Studies of idle equipment have disclosed idle pipe lines, manifolds, jump-overs, etc., which are being tagged and component parts listed for dismantling and later use.

Scrap Program Must Continue

Initial Success in Texas Fields No Reason for Let-up in Future Effort

By ELTON STERRETT
Equipment Editor

THE oil industry throughout Texas is to be congratulated on the speed with which it collected and put into trade channels vast stocks of scrap iron and steel. The Texas Mid-Continent Oil & Gas Association and general chairman Charles F. Roeser can look back on a good job—begun, not done.

Scrap dealers indicate that the flow of oil-field scrap has dropped to the point where a casual survey would indicate that the back-log of material in the industry had been used up. Dealers who formerly counted upon a certain regular tonnage of oil-field scrap report that much of this has ceased since the big drive put on by the industry, and that local oil company men, when asked why no more scrap was forthcoming stated that it had all been brought in.

In some instances *all* the scrap may have been collected, but in many leases there are still piles of waste material, evident to all but the men whose blindness to the possibilities is the result of long association, and these piles, the scattered scrap at a distance from the lease roads, must be rounded up. These "remnants" are needed, *now*. It will be at least two months before shipyards, tank factories and other war industries are in full production and can be counted on to return scrap in needed quantities to the steel mills. In the interim every pound of available scrap must be collected from domestic and industrial sources. Leases must be gone over, if need be, solely with a view toward spotting and collecting scrap. Abandoned and all but forgotten pipe lines must be rooted out and turned in to help fill the scrap need. Scrap which is useful solely on account of its weight value should be replaced by sand, concrete or other nonferrous material and the metal made available for steel making.

A source of much metal on many leases is the culls from the first drive. Many operators, in their effort to make a good showing, worked over their scrap heaps, and turned in only broken castings, scrap pipe, and other material hanging together in fairly large sizes. Left behind were such items as badly rusted culverts, old stacks, corroded tank bottoms, and junked pipe which had passed its useful life as fence posts, derrick underpinning, mats in marshy ground, and similar equipment around the lease, such as discarded salt-disposal pipe lines, eaten away to paper thinness in many spots.

All this material contains steel and, through its large iron oxide content, is valuable for steel making. It is not worth the price paid for other and more conveniently handled steel scrap, however, and should be sold for what it will bring. One dealer, paying a high of $5.00 per (long) ton for such unprepossessing scrap, collected three carloads from as many pump stations after "regular" scrap had gone in on the drive round-up. This at least recompensed the company for handling the scrap, and paid added dividends in removing unsightly piles which had been around so long only a stranger would notice them.

Even if such scrap does not pay —in cash—the outlay required to bring it to the collecting center, the patriotic dividend in added present active steel capacity cannot be computed in mere dollars and cents; this is measurable only in lives of our fighting men, ships

THE WRONG WAY . . .

This old pump casting, delivering something in excess of 2,000 pounds of counterweight effort in this equalizing member of a central power drive, represents raw material for a ton of badly needed new castings for war or oil producing effort. Sand boxes, or, for more easily handled material, concrete counterweights would replace this badly needed iron with a material not of such vital importance in the war effort.

badly needed to supply them and our Allies, and in a hastening of the general war effort.

It is time for the sprinters in the earlier scrap drive to realize that they, too, are in for a long run, and with that knowledge, to draw on their second wind to make scrap flow from the industry a continuing and, if possible, augmented contribution to steel making.

Oil Compact Backs Scrap Program

AT THE meeting of the Interstate Oil Compact Commission in Little Rock, Arkansas, the resolutions committee presented to the commission a resolution commending and backing the industrial scrap collection campaign, the resolution being unanimously adopted by the commission and its support pledged in all states subscribing to the compact.

The resolution reads:

Whereas, the Interstate Oil Compact Commission is devoted to the conservation of resources and materials; and

Whereas, the Nation is now faced with an acute shortage of iron, steel, brass, aluminum, rubber and other materials, and these materials in scrap form must be obtained immediately in order to continue an increase of fighting equipment critically needed by our boys at the front; and

Whereas, the petroleum industry is a quick source for large quantities of these materials so vitally necessary to our Nation's war program:

Therefore be it resolved, that the Interstate Oil Compact Commission heartily endorses and pledges its full support and cooperation to the War Production Board's industrial scrap collection campaign, and recommends that the conservation agencies of the member compacting states call upon all members of the petroleum industry, and other industries, to take full and immediate advantage of the opportunity to aid our Nation in its emergency by at once collecting all scrap metals and rubber at their properties or plants and moving these, through established channels, back to mills now needing them.

• • • *Recent changes in railroad freight rates on scrap to the mills do not affect the local price as computed under the ceiling established by OPA. This increase is met by the steel mills receiving the scrap, and no buyer is justified in attempting to include this charge when dealing with scrap sellers.*

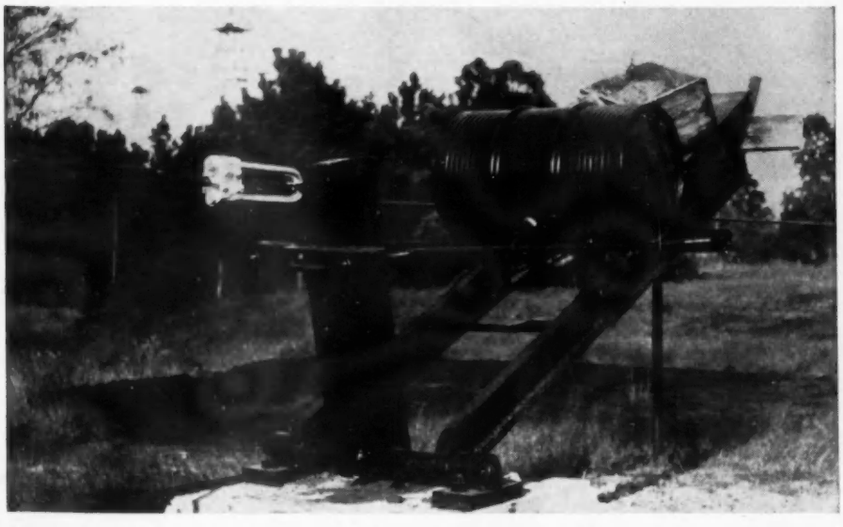
Caution Should Be Exercised in Scrapping Useful Material

IN THE desire to augment scrap tonnage sent to the steel mills, a few operators or their field men were found to have wrecked and consigned to the scrap pile pumping units and other equipment which to them appeared to have passed the point where further rehabilitation was possible. This appraisal, applicable in the field where the equipment had served, failed in some instances to take into account possible operation under less strenuous usage, and shallower well or stripper production was thus deprived of a portion of the equipment which is so urgently required wherever oil and its transportation facilities permit production.

Where an operator whose activities are confined to a single field or locality finds himself with equipment on his hands which is no longer useful to him, it is of value to the Nation's war effort as scrap; but it is doubly valuable if it can be reclaimed and used elsewhere to continue in the production of oil. Such an operator, at loss to dispose of his surplus and obsolete —to him—equipment, may often save the economic loss suffered by reworking the equipment through scrap channels if he will discuss his problem with production representatives of the larger companies near him. These men, with knowledge of varying needs of their own organizations in widely different conditions can often suggest contacts in other fields through whom these apparently obsolete or worn-out equipment units can again take up their part in production.

Scrap is imperative. But scrap obtained at the cost of wrecking equipment with hours of service still available within it is bought at a price far beyond its economic or military value. Scrap *scrap* quickly, but equipment only when it is definitely beyond rehabilitation.

. . . A BETTER WAY



Drum and sand box enable this back-weight unit to be balanced with requirements of three-well pumping hook-up. Even the comparatively light stroke post is stiffened by pouring it full of concrete to give rigidity which otherwise could be secured only through the use of more steel. Further reduction of the steel requirements might be met through substitution of a timber frame, retaining only the through or tension bolts of the original design.

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Washington Sees Substantial Drop In Crude Oil Demand During April

Tire rationing and gasoline-consumption restrictions are having a definite effect upon oil production, it was reported by the Bureau of Mines in its forecast of demand for April, placing the required supply of domestic crude at 3,730,000 barrels a day, 266,800 barrels less than the estimate for March and only 19,500 barrels more than actual demand in April, 1941.

"Bureau of Mines figures for January, 1942, indicate that the total demand for motor fuel of domestic origin was about 10 percent greater than for January, 1941," the bureau explained. "Based on available current data for February, 1942, a gain of only about 3 percent is indicated over a year ago. This sharp drop in the relative demand for motor fuel, notwithstanding the influence of adverse weather conditions, indicates a greater and more immediate effect of tire rationing than was anticipated. With the initiation of the program to curtail gasoline deliveries in the East Coast and the Pacific Northwest, a further substantial cut in normal motor fuel demand is expected.

"The bureau's forecast for total motor fuel demand for April, 1942, is about 2 percent below the total demand in April, 1941. Even after discounting the abnormally high demand in April of last year, the April forecast is about 5,000,000 barrels less than might have been expected if there had been no tire rationing or curtailment in civilian consumption due to readjustments in transportation."

The relative increase in the total demand for other products in January, 1942, was substantially greater than for motor fuel, it was pointed out, and this differential may be further accentuated.

"Currently," the bureau said, "this situation has resulted in a high level of gasoline stocks with unbalanced distribution between districts, a sharp drop in crude runs to stills, a consequent reduction in crude demand, and a large increase in crude stocks.

"Recovery from the present reduced leved of crude demand will depend on the ultimate extent of the reduction in gasoline demand, on the success of efforts to shift refinery yields to meet the increase in the demand for fuel oils, and on the possibility of further sudden changes in the availability of world supplies of petroleum that might call for larger exports from this country."

The bureau reported that daily average crude production in February was 4,127,000 barrels and total runs to stills 3,797,000 barrels, resulting in additions to stocks of 355,000 barrels a day and indicating a demand for domestic crude of 3,772,000 barrels.

Total demand for motor fuel in April is estimated at 55,700,000 barrels. A decrease of 2,300,000 barrels in finished motor-fuel stocks, approximately 109,000,000 barrels at the close of February on the basis of American Petroleum Institute figures, is seen as possible during the coming month.

Benzol production and direct sales of natural gasoline were placed at 1,300,000 barrels, making an indicated refinery production of 52,100,000 barrels, which the bureau distributed among the several refining districts as follows:

East Coast, 6,290,000 barerls; Appalachian, 2,130,000 barrels; Indiana-Illinois, 11,700,000 barrels; Oklahoma, 2,770,000 barrels; Kansas, 3,040,000 barrels; Inland Texas, 3,390,000 barrels; Texas Gulf Coast, 11,540,000 barrels; Louisiana Gulf Coast, 1,510,000 barrels; Inland Louisiana-Arkansas, 1,120,000 barrels; Rocky Mountain, 1,460,000 barrels; California, 7,150,000 barrels.

Natural gasoline to be blended at refineries is estimated as 4,630,000 barrels, and the yield of straight-run and cracked gasoline at 43 percent which, applied to the production of 47,470,000 barrels gives crude runs of 110,400,000 barrels or 3,680,000 barrels daily. The estimate for foreign crude runs to stills is 3,200,000 barrels. Crude oil for export and to be used as fuel, and losses, is placed at 4,700,000 barrels, giving an estimated demand for domestic crude of 111,900,000 barrels for the month, or 3,730,800 barrels daily.

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Michigan Gets Special Boost in Allowable

To meet an OPC special 10,000-barrel increased recommendation for April which will boost the daily production to approximately 63,000 barrels, the Michigan State Department of Conservation authorized an increase in well allowables in four fields from 125 to 170 barrels on a 20-acre unit basis, effective April 1.

The increase applies to Reed City, Roscommon, Winterfield and Adams pools, and it was estimated April production will average 63,000 barrels a day or better. OPC boosted the original April quota from 50,200 to 60,200 to provide 10,000 barrels per day for Colonial Oil Company's refinery at Everett, Mass.

Prior to boosting the flat allowable to 170 barrels the state had increased the factor from 1½ to 1¾ for 40-acre unit wells so that the new allowable on 40-acre wells will be increased from 187 to 294½ barrels per day. State authorities believe the state can "safely deliver 65,000 to 70,000 barrels daily for a minimum of six months and perhaps 18 months, regardless of new discoveries."

Although the state had taken action to step up production and the OPC had ordered 10,000 barrels delivered to Everett, nothing had been clear as to how the oil would be moved. Several routes are open as far as Buffalo by the Great Lakes or possibly on into Albany, by barge. Probably oil will be delivered by existing pipe lines to Bay City, or to Toledo, and then by boat.

Rift Over California Allocations; Bell Resigns

The Production Committee for District 5 has recommended to the Petroleum Coordinator a proration schedule for California fields for April providing for allocation of 623,800 barrels daily of the state's assigned quota of 659,800 barrels daily for crude oil, natural gasoline and condensate.

Method of allocation as recommended calls for minimum allotments ranging from 20 barrels daily at 1000 feet to 55 barrels daily at 10,000 feet. All additional allocation was based on quality of oil produced, taking into consideration transportation difficulties and requirements for natural gas and iso-butane output.

The production committee's recommendation on April allocation was made following disagreement within the conservation committee on methods of allocation to be employed which resulted in the resignation of A. H. Bell as chairman of that group. The resignation was tendered to E. E. Pyles, chairman of the production committee.

In a letter to Pyles carrying his resig-

nation, Bell stated: "It is my considered opinion that if the conservation committee cannot proceed along lines of sound engineering rather than mob vote under the present emergency, we had better disband."

Bell pointed to disagreement within the conservation committee on acceptance of recommendations of its allocation sub-committee which were adopted after debate by a vote of 19 to 13, but was rescinded the following day by a vote of 16 to 15 and the old method of uniform allotment, namely a minimum allotment plus a power factor reduction of the efficient rate (in place of capacity or potential) was adopted.

Bell's Objection

The recommended method for intrapool allocation based on conservation principles was also replaced by the old per-well uniform formula, Bell pointed out.

"During the years of voluntary proration," Bell continued, "we were forced to accept principles of the recalcitrant minority but I had felt that under federal supervision we could get down to proper engineering principles of conservation and equity.

"Under restrictions of Order M-68 we are required to drill our wells under wide-spacing plans and many operators had previously recognized the principle in their operations. It therefore hardly seems compatible for one government agency to enforce wide spacing and for another government-sponsored agency to put a penalty on such practice by only allotting production on a per-well basis and thereby unduly rewarding the operator who has previously disregarded such principles."

Heretofore, methods for allocating California's quota have been recommended by the conservation committee and passed along to the production committee for District 5 for review and then forwarded to the coordinator for approval or rejection. Procedure for April allocation marks a departure from this procedure, however, as the production committee accepted only a part of the conservation committee's program and substituted its own recommendations as to products needed to meet war needs and the West Coast transportation situation. It is considered likely that in future, the production committee will take full charge of allocation procedure but that the conservation committee will continue as an organization of field representatives to consult on industry problems.

Humble Continues Reduced Buying In Southwest Texas

Although Humble Oil & Refining Company has resumed purchasing the full current crude allowable in West Texas and New Mexico fields, it did not drop pipe line proration of Southwest Texas crudes yielding low-octane gasoline. Storage facilities for this grade of crude, the company explains, are almost full, and excessive accumulation continues even under the restricted purchases instituted February 21, 1942. Unless relief is had promptly, physical storage limitations may compel Humble to limit Southwest Texas purchases even further.

Pipe Line Proration Being Dropped in West Texas

Pipe-line proration has been abandoned in West Texas and New Mexico by one purchaser and another larger buyer increased its acceptances, while five others are expected to increase their crude pipe-line proration percentages shortly as result of reduced allowables imposed upon the districts effective April 1.

Humble Oil & Refining Company, largest buyer in the Permian Basin, resumed 100 percent purchases April 1. The company had restricted takings to 60 percent of allowable since February 21. Substantial reduction in the allowable of its well connections in New Mexico resulted from the lowering of the state's quota from 114,500 to 86,000 barrels daily effective April 1. Two sources of relief from surplus connections occurred in West Texas at the start of the present month. The district will have only 12 producing days as compared to 18 during March, thus making a big dent in the company's available supply, while more than half of its well connections in the Wasson field have been turned to Shell Oil Company for an indefinite period. Humble averaged 8000 barrels daily of controlled and purchased crude during March, and transferred to Shell connections involving 4600 barrels of this daily average, or 57 percent of the total. Shell Pipe Line Corporation has two outlets.

Humble stored 1,800,000 barrels of West Texas-New Mexico crudes in January and February. It was this accumulation which forced it to institute a program of reduced purchases. In spite of this, Humble accumulated an additional 600,000 barrels of West Texas grade crude in March. Based on present outlets, Humble will still be storing these crudes in April when taking the full allowables.

Sinclair Prairie Oil Marketing Company, largest shipper of crude through The Texas-New Mexico Pipe Line Company, increased its crude acceptances in West Texas and New Mexico to 75 percent of the allowable, having curtailed its takings to 65 percent of the allowable since February 19.

The Atlantic Refining Company made partial revision of its curtailed buying plan on April 1, agreeing to take 60 percent of the allowable from connections in Ward County and those in Pecos County served by Comanche Pipe Line Company. This oil is delivered to Pasotex Pipe Line Company on consignment to Standard of Texas' El Paso refinery. Atlantic will continue to take only 23 percent of the allowable in other West Texas and New Mexico fields, except contracts held in the Wasson and Slaughter fields. Crude acceptances in the Henderson field have not been curbed since this oil is delivered to Stanolind Pipe Line Company. Atlantic withdrew on April 1 from Hobbs, through surrender of its connections to Shell.

Shell Oil Company is attempting to maintain normal volume of crude receipts from West Texas and New Mexico in the face of sharp cuts in allowables by taking on additional connections that are being tied into by Shell Pipe Line Corporation, which has two 10-inch trunk line outlets. In addition to relieveing Atlantic in New Mexico and Humble at Wasson, Shell has taken over Magnolia Pipe Line Company's entire Winkler County runs, which averaged 6000 barrels daily last month, and also purchased 150,000 barrels of stocks from Magnolia. Magnolia will continue to gather the oil, making deliveries to Shell near Wink.

Shell Pipe Line Corporation has arranged to ship about 5000 barrels daily of surplus crude through Gulf Refining Company's system from point near Monument, N. M., to Wink, Texas, where the oil will be returned to Shell.

Texas Trucking Company Organized to Handle Oil

Organization of a company to transport oil products by tank truck throughout the Southwest from refineries to distributing points in order that railroad tank cars may be released to haul oil to the East Coast was announced last week.

Texas Consolidated Transportation Company was granted a permit by the Texas Railroad Commission. Incorporated for $100,000, the company has or has contracted for 70 complete tank truck units which, it is estimated, will release about 35 railroad tank cars.

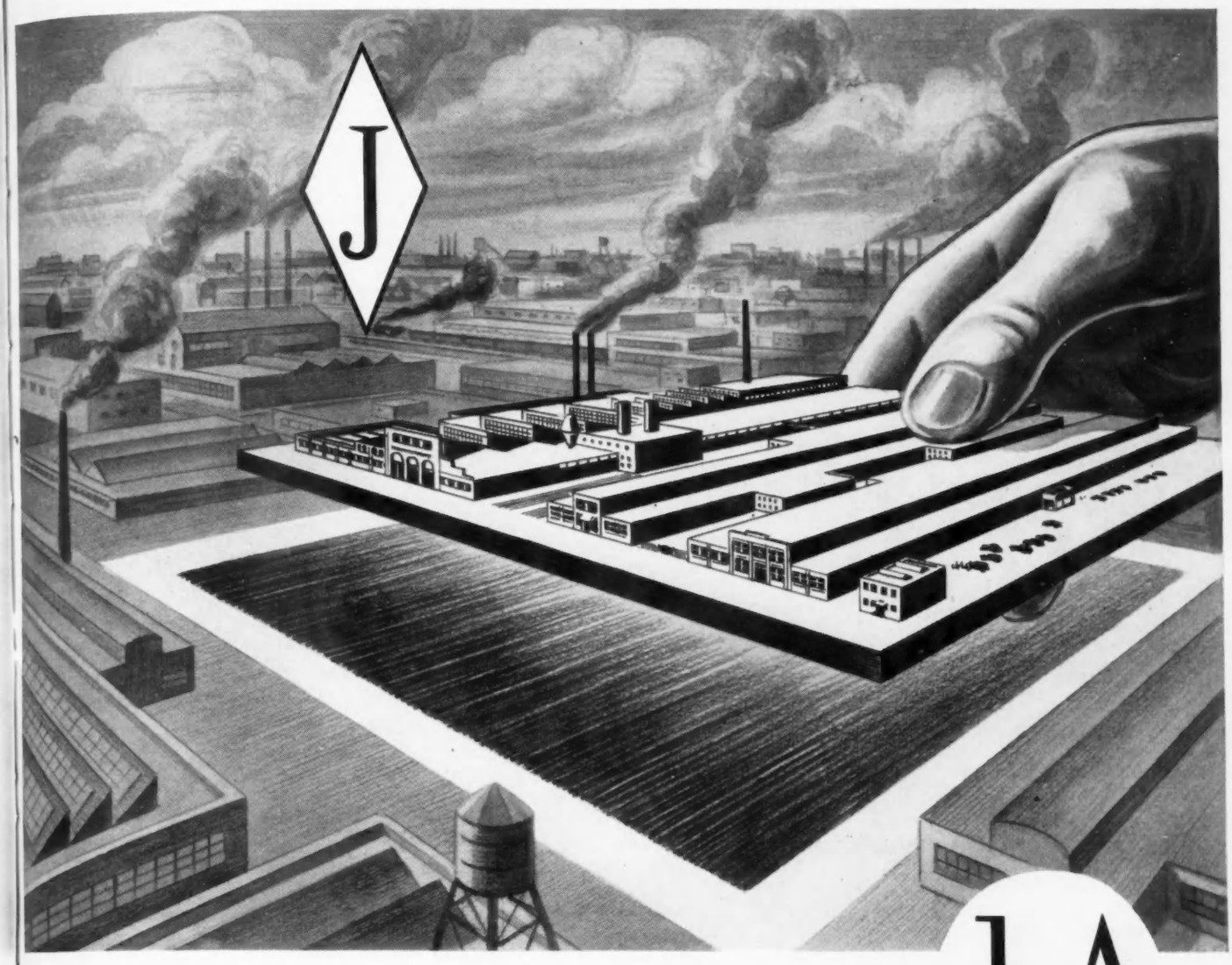
Hal Peterson of Kerrville, is president. Headquarters of the new company are in Kerrville with branch offices at Houston and San Antonio.

Pipe Lines Move More Texas Crude to East

Several steps were taken the past week to increase movement of Texas crude oil north to relieve the East Coast scarcity.

Delivery of 600,000 barrels of Mid-Continent grade crude from West Central Texas via Louisiana, Arkansas and Oklahoma thence east has been arranged by Humble Oil & Refining Company. Initial tender of 200,000 barrels has been approved by the East Texas tender board, since the oil will be routed through the big field. Humble Pipe Line Company will pull on scattered stocks of this crude in Jones, Eastland, Stephens and Comanche counties and transport the oil at rate of 10,000 barrels daily to connection with Stanolind Pipe Line Company's Houston-Mexia multiple system. Stanolind will pump north to Mexia, making deliveries to Humble Pipe Line Company, which has arranged to reverse the stream in one of its units to the East Texas field. The oil will share space with East Texas field oil in a 10-inch carrier that extends from Longview junction to Moore station, Louisiana, then routed via trunk lines of Standard Oil Company of Louisiana, Oklahoma Pipe Line Company, Ajax Pipe Line Company and connecting units in reaching the East Coast. When this movement gets underway Standard of Louisiana will also pump 18,500 barrels from East Texas field and 12,500 barrels of Arkansas-Louisiana high-gravity oil daily to the Oklahoma-Ajax hookup.

Sinclair Refining Company began moving 12,000 barrels of crude daily from Mexia terminal early last week via Hensley station, thence into Oklahoma. It is understood that the latter has in excess of 1,000,000 barrels of Mid-Continent grade crude in storage at Mexia, and that when this has been liquidated that a portion of the East Texas field stream will be diverted from Houston to the Mid-Continent then to



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points in Middlewest and East. Sinclair recently diverted its entire high-gravity runs from North and West Central Texas into Oklahoma, having previously moved considerable portion south to its Houston refinery.

Gulf Refining Company has taken steps to transport additional Texas and Louisiana crudes north through its multiple system, which can handle 60,000 barrels daily to the north of the East Texas field into Oklahoma. Company is moving about 20,000 barrels of East Texas crude, Opelika distillate and crude and distillate mixture from Chapel Hill. A similar volume of Gulf Coast Grade B oil and Louisiana high-gravity crudes are to be routed north in a parallel 8-inch line.

Texas Group Considers Improving Transportation

Immediate expansion of transportation facilities for the movement of crude oil and refined products from Texas will be sought by a group which met at Dallas March 31 to seek relief from the drastic curb placed on production as result of the shrinkage in water shipments from coastal terminals. The meeting was called by H. P. Nichols, executive vice president of the East Texas Oil Association, and also passed resolution that Price Administrator Leon Henderson allow a minimum price advance of 25 cents per barrel for crude oil for the duration of the emergency.

The curtailment of Texas crude output to 12 producing days in March and 18 in April, plus pipe-line proration in some districts, has threatened the economic life of the independent producers of the state. Speakers expressed belief that the transportation bottleneck could be corrected without impairing the war program through diversion of steel and other equipment for the establishment of needed pipe lines and barges.

E. B. Germany, Dallas, was appointed chairman of a committee to advance the proposals that OPC take action. Other members of the committee are: Walter M. Priddy, Wichita Falls; Marion Church, Jack D. Wrather and M. E. Wilson, Dallas; Roy Goldston and Jerry C. Hawkins, Tyler.

E. L. DeGolyer, director of conservation for OPC stated that the Petroleum Coordinator favored the construction of a large trunk line from Texas, but that the War Production Board held that the necessary steel is needed for tanks and ships. DeGolyer added that it was foolish for operators to continue drilling when the pipe could be used laying lines required to serve distant markets. He explained that the advantage of water transportation during normal times over cross-country lines resulted in some of the latter being dismantled in states now lacking adequate transportation facilities.

Two Illinois Flood Projects Given State Approval

A total of 96 oil wells and 126 input wells will be drilled on a 240-acre tract in Sections 9 and 17 of Parker township in Clark County in a water-flood project approved by the Illinois division of oil and gas conservation.

G. C. Curtis, superintendent of the division, said the contract has been given to Stohr Brothers & Company of Casey.

The application is one of several approved recently by the division after rules for water flooding and secondary recovery of oil had been prepared for Illinois operators.

Two other projects are now in final stages of development, one for 40 acres in SW 21-11n-14w, Clark County; and another for 200 acres, part of S½ 12 and N½ 13-10n-11e, Cumberland County.

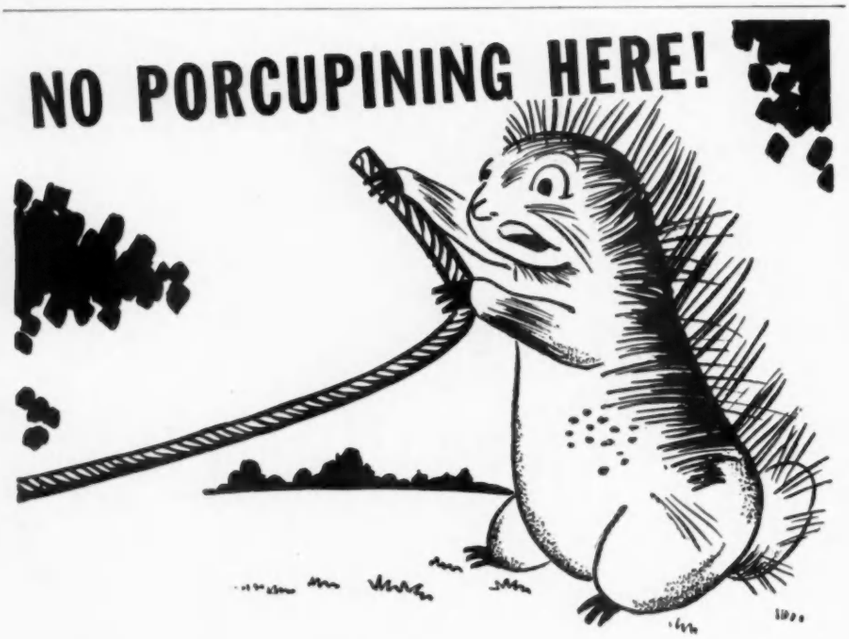
All projects center in fields which were the scene of primary development from 1904 to 1908. Re-development began shortly after start of the war.

Goldsmith Proposes New Field Rules

A plan for conserving approximately 5 billion cubic feet of gas annually in the Goldsmith field, Ector County, was presented to the Texas Railroad Commission last week by the Goldsmith Engineering Committee, which proposed establishment of production units not larger than 320 acres. Allowables for wells would be fixed on a monthly, rather than on a daily basis. Not more than 16 wells could be located on a 320-acre unit.

The plan would authorize an operator to close in his high gas-oil ratio wells, and their allowables would be assigned to other wells that could produce the oil more efficiently.

E. A. Wahlstrom of the committee testified the program suggested would not only conserve large amounts of gas, but also would increase the ultimate recovery from this field by 50 percent.



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2-42

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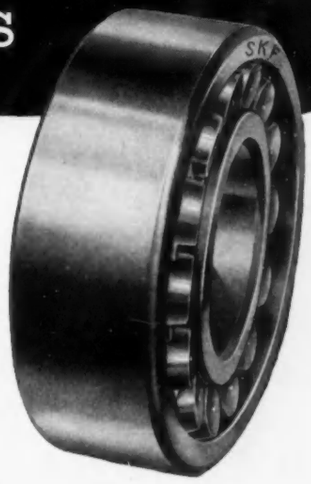

5014

SKF INDUSTRIES, INC., FRONT ST. & ERIE AVE., PHILA., PA.

Washington Roundup

[Continued from page 14]

it breached it. Two days later, however, he said, the company discontinued supplies because of the government blacklist.

The assistant secretary admitted the company might have been glad the blacklist gave it the opportunity to sever relations with the airlines, and said that since then it has cooperated wholeheartedly with the department. La Varre, however, asserted that the company did not have a contract.

Edward H. Foley, Jr., general counsel for the Treasury Department, testified regarding the $24,000,000 offer made by Germany for Standard's Hungarian properties, which Farish had declared had been disapproved by the Treasury for reasons he could not understand.

Foley explained that the government's position was that approval of the offer would give Standard preferential treatment not accorded to other Americans with investments in Hungary. He told the committee the company had admitted the offer represented more than it had put into the properties. He pointed out also that Germany had been seeking legal methods of acquiring a domination of European industry and that, under the circumstances had the government approved the Standard Oil deal it would in effect be giving its approval to Germany's program for developing a new economic order on the continent.

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BRANCH OFFICES IN HOUSTON AND SAN ANTONIO

14 Oil Companies to Push Rubber Output

Contracts and agreements under which an annual production of synthetic rubber of more than 700,000 tons will be reached by the end of 1943 have been entered into by the Rubber Reserve Company and Defense Plant Corporation with 25 oil, chemical and rubber companies, it was announced April 1 by Secretary of Commerce Jesse H. Jones.

Jones said the plants will come into operation over the next 18 months and if no unforeseen construction delays are encountered all should be in production by the end of 1943.

Substitutes Suggested For Refinery Material

Substitutes for strategic materials which can be used by refiners during the emergency are discussed in a leaflet of "Suggestions for Wartime Plant Design" issued this week by OPC.

Major items affected by War Production Board conservation orders, coordinating officials said, are sheared steel plate used for making refinery apparatus, galvanized steel sheets used to weatherproof insulation, non-ferrous metals, steel tubes, and power equipment.

For each item listed as a "tight" material or machine, the leaflet suggests specific substitutes.

Refiners and refining-plant contractors are cooperating enthusiastically in the OPC program for conservation, it was said, but the biggest bottleneck in refinery construction is a lack of designing and construction personnel. To meet this problem, it is suggested that stock plant designs be used wherever possible.

GRAVITY-SCALE CRUDE OIL PRICES IN MID-CONTINENT FIELDS

Posted in most instances between May 19 and May 21, 1941

GRAVITY	Oklahoma-Kansas		North Louisiana-Arkansas					Inland Texas and New Mexico			South Texas		Texas Gulf Coast			Louisiana Gulf Coast							
	Stanolind, Gulf, Texas, Skelly, Barnsdall, Tidewater, Sinclair, Phillips	Carter, Magnolia, Shell	[1]Rodessa, etc.	[2]Champagnolle, etc.	Bunkie, Eola, Olla (by Standard)	Lisbon, La. (by Gulf)	[3]Atlanta, Buckner, etc., Ark.	North and West Central Texas	[4]Eastern Texas	West Texas, [17]Panhandle, New Mexico	[5]Refugio Type	[5]Mirando Type	[7]Gulf Coast	[8]Anahuac Type	[9]Dickinson Type	[10]Gulf Coast	[11]Standard of La.	[12]Texas Co.	[13]Texas Co.	[14]Magnolia Pet. Co.	[15]Shell Oil Co.	Jennings (by Gulf)	[16]Rocky Mt. Area (Salt Creek, etc.)
17-17.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$0.94	....	....	....
18-18.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.96	....	....	....
19-19.9	....	....	....	....	....	....	....	....	$0.80	$0.70	$1.08	$1.03	$1.06	$0.98	$0.93	$1.06	....	....	....	.98	$0.99	....	....
20-20.9	$0.85	$0.75	....	....	....	....	$0.68	$0.81	.82	.72	1.10	1.05	1.08	1.00	.95	1.08	$0.90	....	....	1.00	1.01	....	....
21-21.9	.87	.78	....	....	....	....	.70	.83	.84	.74	1.12	1.07	1.10	1.02	.97	1.10	.92	....	....	1.02	1.03	....	....
22-22.9	.89	.81	....	....	....	....	.72	.85	.86	.76	1.14	1.09	1.12	1.04	.99	1.12	.94	....	....	1.05	1.05	....	....
23-23.9	.91	.84	....	....	....	....	.74	.87	.88	.78	1.16	1.11	1.14	1.06	1.01	1.14	.96	....	....	1.08	1.07	....	....
24-24.9	.93	.87	$0.88	$0.86	$0.98	....	.76	.89	.90	.80	1.18	1.13	1.16	1.08	1.03	1.16	.98	....	....	1.11	1.09	....	....
25-25.9	.95	.90	.90	.88	1.00	....	.78	.91	.97 / .92	.82	1.20	1.15	1.18	1.10	1.05	1.18	1.00	....	....	1.14	1.11	....	....
26-26.9	.97	.93	.92	.90	1.02	....	.80	.93	.99	.84	1.22	1.17	1.20	1.12	1.07	1.20	1.02	....	....	1.17	1.13	....	....
27-27.9	.99	.96	.94	.92	1.04	$0.81	.82	.95	1.01	.86	1.24	1.19	1.22	1.14	1.09	1.22	1.04	....	....	1.19	1.15	....	....
28-28.9	1.01	.99	.96	.94	1.06	.83	.84	.97	1.03	.88	1.26	1.21	1.24	1.16	1.11	1.24	1.06	$1.06	....	1.21	1.17	....	$0.96
29-29.9	1.03	1.02	.98	.96	1.08	.85	.86	.99	1.05	.90	1.28	1.23	1.26	1.18	1.13	1.26	1.08	1.08	....	1.23	1.19	....	.98
30-30.9	1.05	1.05	1.00	.98	1.10	.87	.88	1.01	1.07	.92	1.30	1.25	1.28	1.20	1.15	1.28	1.10	1.10	$1.05	1.25	1.21	....	1.00
31-31.9	1.07	1.07	1.02	1.00	1.12	.89	.90	1.03	1.09	.94	1.32	1.27	1.30	1.22	1.17	1.30	1.12	1.12	1.07	1.27	1.23	$1.07	1.02
32-32.9	1.09	1.09	1.04	1.02	1.14	.91	.92	1.05	1.11	.96	1.34	1.29	1.32	1.24	1.19	1.32	1.14	1.14	1.09	1.29	1.25	1.09	1.04
33-33.9	1.11	1.11	1.06	1.04	1.16	.93	.94	1.07	1.13	.98	1.36	1.31	1.34	1.26	1.21	1.34	1.16	1.16	1.11	1.31	1.27	1.11	1.06
34-34.9	1.13	1.13	1.08	1.06	1.18	.95	.96	1.09	1.15	1.00	1.38	1.33	1.36	1.28	1.23	1.36	1.18	1.18	1.13	1.33	1.29	1.13	1.08
35-35.9	1.15	1.15	1.10	1.08	1.20	.97	.98	1.11	1.17	1.02	1.40	1.35	1.38	1.30	1.25	1.38	1.20	1.20	1.15	....	....	1.15	1.10
36-36.9	1.17	1.17	1.12	1.10	1.22	....	1.00	1.13	1.19	1.04	1.42	1.37	1.40	1.32	1.27	1.40	1.22	1.22	1.17	....	....	1.17	1.12
37-37.9	1.19	1.19	1.14	1.12	1.24	....	1.02	1.15	1.21	1.06	1.44	1.39	1.42	1.34	1.29	1.42	1.24	....	1.19	....	....	1.19	1.14
37-38.9	1.21	1.21	1.16	1.14	1.26	....	1.04	1.17	1.23	1.08	1.46	1.41	1.44	1.36	1.31	1.44	1.26	....	1.21	....	....	1.21	1.16
39-39.9	1.23	1.23	1.18	1.16	1.28	....	1.06	1.19	1.25	1.10	1.48	1.43	1.46	1.38	1.33	1.46	1.28	....	1.23	....	....	1.23	1.18
40 & Up	1.25	1.25	1.20	1.18	1.30	....	1.08	1.21	1.27	1.12	1.50	1.45	1.48	1.40	1.35	1.48	1.30	....	1.25	....	....	1.25	1.20

[1] Gulf schedule for Caddo, Homer, Haynesville, Bull Bayou, Crichton, De Soto, El Dorado and Rodessa, Texas. Standard of La. schedule for Cotton Valley, Rodessa, Shreveport (Cross Lake), and Caddo. Magnolia schedule for Haynesville, Cotton Valley, Rodessa, and Miller Co., Ark. Texas Co. schedule for "North Louisiana."

[2] Schedule of Standard of La. for De Soto, Sabine, Fouke, Homer, Miller Co., Sugar Creek. Schedule of Root Petroleum Co. for Nick Springs, Urbana light, Schuler sweet, Rainbow, South Field (El Dorado), and Champagnolle.

[3] Schedule of Standard of La. for Atlanta, Buckner, Magnolia, Schuler: Jones sand, Village. Schedule of Root Petroleum Co. for Schuler: Reynolds lime, and Schuler: Jones sand.

[4] Humble schedule for Anderson, Cherokee, Limestone, and Navarro counties and Navarro Crossing field, except that prices from 80 to 92 cents represent postings only for Hawkins field, Wood County. Rodessa, Texas, prices are same as in Rodessa, La.-Ark.

[5] Schedule for Refugio, E. White Point, Greta, Melon Creek, Midway, Minnie Bock, O'Connor-McFaddin, Plymouth, Saxet, Taft, and Tom O'Connor.

[6] Schedule for Blanchard, Bridwell, Colorado, Comitas, Eagle Hill, Escobas, Fitzsimmons, Glen, Government Wells (N. and S.), Heyser, Hoffman, Kelsey, Kohler, Loma Novia, Lundell, Manila, Mirando Valley, Placedo, Randado, Sarnosa, and Tesoro.

[7] Humble schedule for Amelia, Clear Lake, Goose Creek, Hastings, Magnet, Mykawa, Mykawa new, Raccoon Bend, South Thompsons, Sugarland, Thompsons, Webster. Texas Co. schedule for Arriola, Ganado, Hamman, Hillje, Humble, Kubela, Magnet, Manvel, Markham, Mauritz, Old Ocean, Pickett Ridge, Port Neches, Sour Lake, West Columbia, Withers; except that schedule provides $1.36 top, 34 gravity. Pan American Prod. Co. schedule for Hastings and South Houston. Gulf schedule for Spindle Top, Sour Lake, Lovells Lake, West Beaumont, Goose Creek, South Liberty, Big Creek, Blue Ridge, Fannett, Moore, Barbers Hill, Hankamer, Thompsons, Lochridge, Dyersdale, and Hull (old) crudes. Sun schedule for Barbers Hill, Batson old, Cotton Lake, Esperson below 35 gravity, Goose Creek, Greens Lake, Hull below 25, Humble below 35, Nome, North Dayton below 25, Orange, Saratoga, Sour Lake, South Liberty.

[8] Humble schedule for Anahuac, Angleton, Cedar Point, Fishers' Reef, Hull old and new, Pierce Junction, Red Fish Reef, Turtle Bay fields. Sun schedule for Anahuac, Caplen, and Turtle Bay. Gulf schedule for Anahuac, Hull new, Pierce Junction, Orange and Thompsons deep.

[9] Humble schedule for Dickinson, Gillock, Hardin, League City, and Rowan fields. Pan American Prod. Co. schedule for Gillock crude.

[10] Sun Oil Co. schedule for Bayou Blue, Chacahoula, Fausse Pointe, Hackberry (E. and W.), and Vinton. Texas Co. schedule for Bay St. Elaine, Caillou Island, Iberia, Lake Barre, Lake Pelto, Leesville and Port Barre for crude ranging in gravity up to 27-27.9; for lighter oils in those fields see Footnote 12. Gulf schedule for Edgerly, Starks, Vinton, E. Hackberry Cameron Meadows, Leesville. Deduct 10 cents for Gulf's prices for Timballer Bay, Grand Bay, Quarantine Bay, and West Bay. Deduct 2 cents for Standard of La. prices for University (Baton Rouge) crude of 30 to 35.9 gravity.

[11] Standard of La. schedule for Bayou Mallet, Choctaw, Darrow, Jeanerette, Lirette, N. Crowley, S. Crowley, Port Barre, Potash, Roanoke, St. Martinville. Deduct 10 cents for Anse La Butte.

[12] Texas Co. schedule for Bateman Lake, Dog Lake, Fausse Point, Horseshoe Bayou, Jefferson Island, Plumb Bob, Vermilion Bay, West Cote Blanche, and Delta Duck Club. Add 8 cents to these prices for Texas Co. postings for 28 or higher gravity at Bay St. Elaine, Caillou Island, Iberia, Lake Pelto, Leesville, Port Barre, and Lake Barre.

[13] Texas Co. schedule for Delta Farms, Golden Meadows, Lake Salvador.

[14] Magnolia schedule for Lockport, Cameron Meadows, West Gueydan.

[15] Shell Oil Co. schedule at Iowa, Black Bayou, White Castle. For Shell's prices at Roanoke and Chalkley fields deduct 5 cents. For Shell's prices at Gibson, South Houma, Hester, and West Lake Verret fields deduct 10 cents.

[16] Sinclair-Wyoming Oil Co. prices at Salt Creek, Lost Soldier, Iron Creek, effective May 20, 1941. Deduct 10 cents for East Mahoney and deduct 20 cents for Mahoney and Wertz.

[17] Add 3 cents for Panhandle prices.

Mid-Continent Flat Prices

FIELD—	Flat Price	Date Posted
Arkansas:		
Big Creek, Dorcheat McKamie	$1.15	5-22-41
Smackover, Heavy	.83	5-22-41
Louisiana, North:		
Cotton Valley Distillate	1.30	5-22-41
Cotton Valley (Holloway sn.)	1.25	5-22-41
Lisbon Distillate	1.20	5-22-41
Louisiana, South:		
Erath	1.21	5-21-41
Garden Island	1.36	5-21-41
Happytown	1.15	5-20-41
Lafitte, Paradis	1.19	5-21-41
Lake Arthur & Tepetate	1.18	5-21-41
Lake Mongoulois	1.36	5-21-41
Ville Platte	1.20	5-21-41
Texas:		
Alice, Benavides (No. Sweden) Ben Bolt Clark-Muil, Sun and Tom Graham	1.35	5-21-41
Cayuga	.90	5-21-41
Chapel Hill 50° and up	1.25	3-19-42
Chapel Hill below 50°	1.18	1-20-42
Clay Creek	1.00	5-22-41
Cleveland	1.26	5-21-41
Conroe	1.43	5-21-41
Darst Creek	1.14	5-21-41
Esperson 35° & up; S. Esperson (Sun Oil)	1.30	5-22-41
East Texas, Flag Lake	1.25	5-20-41
Flour Bluff, East Flour Bluff, and La Rosa	1.33	5-21-41
Hockley-Cochran Counties	.87	5-21-41
Livingston, Cleveland	1.25	5-20-41
Long Lake	1.23	5-21-41
Luling	1.05	5-21-41
Lytton Springs	1.17	5-21-41
North Rincon	1.35	5-22-41
Salt Flat, North Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.14	5-21-41
Satsuma, Tomball	1.40	5-21-41
Sun Oil Co at Batson (new), Fig Ridge, Hardin, Hull 25 and up, Humble 35 and up, LaBelle, N. Dayton 25 and up, Oyster Bayou, Seabreeze, S. China, W. Orange, and Willow Slough	1.25	5-22-41
South Cotton Lake	1.35	5-22-41
Sun, N. Sun, N. Rincon, Garcia	1.35	5-22-41
Talco	.79	5-21-41
Van	1.08	5-21-41
Yates (Deep)	.95	5-20-41
Yates (Shallow)	.82	5-20-41
Yturria (Sun in S. Texas)	....	.....

Michigan Prices

Central (Basin):		
Porter, Greendale, Crystal, Wise, Midland, Vernon, Saginaw	$1.44	5-27-41
Buckeye, Edenville, Bentley, Beaverton, Monitor, Kawkawlin	1.42	5-27-41
Freeman, Lincoln, Sherman Redding, Temple, Winterfield	1.39	5-27-41
Hamilton-Grout	1.29	5-27-41
Adams	1.27	6- 1-41
Arenac, Clayton, Ogemaw, W. Branch	1.24	5-27-41
Southwest (Shallow):		
Traverse crude in Allegan, Kent, Ottawa, Van Buren Cos.	1.45	6- 2-41
Clare	1.11	5-27-41

Middle West Prices

FIELD—	Flat Price	Date Posted
Lima, Ohio	$1.17	5-28-41
Illinois Basin (Sohio Corp.)	1.37	5-19-41
Lake Centralia-Salem, Illinois	1.37	5-19-41
Eastern Ill.-Western Ind.	1.22	5-21-41
Western Kentucky	1.32	5-21-41
Birk City, Western Kentucky	1.32	5-21-41
Kentucky River, Eastern Ky.	1.43	6-19-41
Big Sandy River, Eastern Ky.	1.38	6-19-41

Rocky Mountain States Prices

Colorado:		
Canon City and Florence	$0.95	4- 1-41
Iles	.97	4- 1-41
Montana:		
Cat Creek	1.15	4- 1-41
Cut Bank	1.00	1- 1-40
Dry Creek	1.02	5-20-41
Sunburst	1.00	5-20-41
New Mexico:		
Artesia	.94	5-21-41
Hogback	1.00	10-11-38
Wyoming:		
Big Muddy	1.03	4- 1-41
Byron	.55	10-11-38
Elk Basin	1.00	5-21-41
Frannie, Light	.70	5-20-41
Frannie, Heavy	.47	5-20-41
Garland	.50	10-11-38
Grass Creek, Light	1.00	5- 1-41
Grass Creek, Heavy	.50	5-20-41
Hamilton Dome	.45	5-20-41
Lance Creek (Ohio Oil Co)	1.12	7- 1-41
Mill Creek	.72	10-11-38
Oregon Basin	.40	4-20-40
Osage	1.30	10-11-38
Poison Spider	.59	10-11-38
Rock River	1.15	5-21-41
Tensleep	.6515	2- 1-41

[Continued on Next Page]

Wholesale Prices of Refined Products in Principal Markets

REFINED GASOLINE	Current Range (Cents a gal.)		Changes from Month Ago	
Oklahoma Refineries:				
60 Octane and Under	4⅝	5¼	—½	—⅜
63-66 Octane	5	5⅜	—½	—⅜
72-74 Octane	5⅜	6	—½	—⅜
80-82 Octane, Ethyl	6¼	6⅞	—½	—⅜
Mid-Western Tank Car:				
60 Octane and Under	4⅝	5¼	—½	—⅜
63-66 Octane	5	5⅜	—½	—⅜
72-74 Octane	5⅜	6	—½	—⅜
80-82 Octane, Ethyl	6⅜	6¾	—⅜	—⅞
New York Harbor:				
68-70 Octane	8⅞	8⅞	+½	+½
72-74 Octane	8⅞	8⅞	+½	...
Min. 80 Octane, '39 Research	9⅜	9⅞	+½	+½
Gulf Coast:				
60 Octane unleaded	5	5	—⅝	—⅝
65 Octane unleaded	5¼	5⅜	—½	—⅛
68 Octane unleaded	5½	6¼	—⅝	...
70 Octane unleaded	5½	5⅞	—⅜	—¾
72-74 Octane leaded	5¼	6	—¾	—¼
Min. 80 Octane, '39 Research	6¼	6½	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	2¼	2¼	—⅛	—⅛
F.O.B. Br'kenr'ge, Tex.	2	2	...	...
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4⅜	4½	...	—¼
42-44 water white	4½	4½	...	—⅛
Mid-Western Tank Car:				
41-43 water white	4⅜	4⅞	...	+⅛
42-44 water white	4½	4½	...	...
New York Harbor	5⅜	5⅜	+⅜	+⅜
Gulf Coast:				
41-43 water white	3⅞	4⅜	—⅛	...
RANGE OIL				
At Oklahoma Refineries	4	4⅜	...	...
In Mid-Western Market Group 3, basis	4	4	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 prime white	3⅞	4¼	...	...
No. 1 straw	3½	4	...	...
No. 2 straw	3⅝	4⅛	...	...
No. 3	3½	3½	...	...
Mid-Western Tank Car:				
No. 1 prime white	3⅞	4⅛	...	...
No. 2 straw	3⅝	3⅞	...	...
No. 3	3½	3½	...	—⅛
New York Harbor:				
No. 1	5⅜	5⅜	+⅜	+⅜
No. 2	5⅝	5⅝	+⅜	+⅜
No. 3	5⅝	5⅝	+⅜	+⅜
Gulf Coast:				
No. 2	3¾	4	—¼	...

HEAVY FUELS	Current Range (Per Bbl.)		Changes from Month Ago	
Oklahoma Refineries:				
No. 6	$0.85	$0.90	...	...
14-16 Gravity	.95	.95	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.85	.85	...	...
New York Harbor:				
No. 5	1.85	2.00	+.20	+.20
No. 6	1.55	1.55	+.20	+.20
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$0.95	...	...
New York Harbor	1.55	1.55	+.20	+.20
DIESEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$1.55	$1.68	—.10	—.12
New York Harbor	2.32	2.32	+.17	+.17
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright stock (viscosity at 210°):				
200 vis. D, 10-25 pour point	.27	27	...	...
150-160 vis. D:				
0-10 pour point	23	23	...	—½
10-25 pour point	22½	23	...	...
25-40 pour point	23	23	...	...
150-160 vis. E	22	22	...	...
120 vis. D, 0-10 pour point	22	22	...	...
600 s.r. dark green	8½	8½	—1	—1
600 s.r. olive green	10	11	—½	...
631 s.r.	18½	18½	...	...
Neutral Oils (viscosity at 100°, 0-10 pour point):				
Pale Oils:				
60-85 vis. No. 2 color	8	8½	...	—¼
86-110 vis. No. 2 color	8½	8½	...	—¼
150 vis. No. 3 color	14½	14½	...	...
180 vis. No. 3 color	15	15	...	...
200 vis. No. 3 color	15	15	...	—½
250 vis. No. 3 color	16	16½	—½	...
280 vis. No. 3 color	17	17	...	—½
300 vis. No. 3 color	18	18	...	—½
Red Oils:				
180 vis. No. 5 color	15	15	...	...
200 vis. No. 5 color	15	15	...	...
280 vis. No. 5 color	...	...	...	...
300 vis. No. 5 color	17	17½	...	...
Western Pennsylvania:				
Cylinder Stocks:				
600 s.r. filtrable	15	15	...	...
650 s.r.	15½	15½	...	...
600 flash	16	16	...	...
630 flash	17	17	...	...

LUBRICATING OIL (Cents a gal.)	Current Range		Changes from Month Ago	
Bright Stock (No. 8 Color, 145-155 vis. at 210°, 540-550 fl.):				
10 pour test	30½	30½	...	...
15 pour test	29½	29½	...	...
25 pour test	25	25	...	...
Viscous Neutrals (No. 8 Color, vis. at 70°):				
200 (180 at 100), 420-425 fl.:				
Zero pour test	40½	40½	...	...
10 pour test	39½	39½	...	...
15 pour test	38½	38½	...	...
25 pour test	33	33	...	...
150 (143 at 100), 400-405 fl.:				
Zero pour test	38½	38½	...	...
10 pour test	37½	37½	...	...
15 pour test	36½	36½	...	...
25 pour test	31	31	...	...

Eastern States Crude Oil Prices

FIELD—	Flat Price	Date Posted
Bradford-Allegany	$3.00	3-26-42
Sw. Pa. Pipe Line	2.65	3-26-42
Eureka Pipe Line, W. Va.	2.50	3-26-42
Corning Grade, Ohio	1.31	5-27-41
Buckeye Crude, Ohio	2.30	6-18-41

Major Crude Oil Price Changes

	Penna. Grade	Mid-Cont. (36 Gr.)	Calif. (26 Gr.)
Jan. 1, 1940	Up 25	.....	.....
Feb. 1, 1940	.....	.....	Cut *7
May 22, 1940	Cut 25	.....	.....
June 18, 1940	Cut 25	.....	.....
July 12, 1940	Cut 25	.....	.....
Aug. 28, 1940	Cut 15	.....	.....
Nov. 12, 1940	Up 15	.....	.....
Dec. 17, 1940	Up 15	.....	.....
Jan. 27, 1941	Up 15	.....	.....
April 1, 1941	.....	Up 5	.....
April 23, 1941	Up 10	.....	.....
April 24, 1941	.....	.....	Up *6
May 19, 1941	.....	Up 10	.....
May 21, 1941	Up 15	.....	.....
May 22, 1941	.....	.....	Up *6
June 18, 1941	Up 20	.....	.....
Aug. 14, 1941	Up 23	.....	.....
Aug. 25, 1941	Cut 23	.....	.....
March 26, 1942	Up 25	.....	.....

* Signal Hill 26 gravity.

CRUDE OIL PRICES IN CALIFORNIA

Prices per barrel in field, posted by Standard Oil Company of California, effective May 23, 1941
All gravities above those quoted take highest price offered in that field

Gravity	Signal Hill (Long Beach)	Wilmington	El Segundo	Seal Beach	Huntington Beach	Inglewood	Playa del Rey	Olinda, Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Newhall, Kern River, Kern Front, McKittrick, Round Mountain	Greeley, Canal, Wasco	Coles Levee	Mountain View	Elk Hills, Buena Vista Hills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Kettleman Hills	Elwood Terrace
14-14.9	....	$0.68	....	....	$0.71	....	....	$0.70	....	$0.70	$0.70	$0.70	$0.72	....	....	$0.73	....	....	....	$0.73	$0.73	$0.73	....	....
15-15.9	....	.71	....	....	.75	$0.76	....	.72	....	.72	.71	.72	.72	....	....		....	....	....	.73	.73	.73	....	....
16-16.9	....	.74	$0.79	....	.79	.79	....	.75	....	.74	.73	.75	.72	....	....		....	....	....	.73	.75	.73	....	....
17-17.9	....	.78	.82	....	.82	.82	....	.78	....	.77	.76	.78	.72	....	....		....	....	....	.75	.78	.73	....	....
18-18.9	$0.80	.82	.86	....	.86	.85	....	.81	....	.80	.79	.82	.74	....	....		....	....	....	.78	.81	.73	....	....
19-19.9	.84	.86	.90	....	.89	.88	....	.85	....	.83	.82	.85	.77	....	....	Wheeler Ridge	....	....	$0.73	.81	.84	.75	....	....
20-20.9	.88	.90	.94	....	.93	.92	$0.80	.88	....	.86	.85	.89	.80	....	....		....	....	.76	.85	.87	.77	....	....
21-21.9	.92	.94	.98	....	.96	.95	.84	.91	....	.89	.89	.92	.84	....	....		....	....	.79	.90	.90	.80	....	....
22-22.9	.96	.98	1.02	$0.88	.99	.98	.87	.95	....	.93	.93	.96	.87	....	....	$0.76	....	....	.83	.94	.93	.83	....	....
23-23.9	1.00	1.02	1.05	.92	1.02	1.01	....	.98	....	.97	.98	1.00	.91	....	....	.80	....	....	.87	.99	.96	.86	....	....
24-24.9	1.03	1.06	1.07	.97	1.05	1.04	F.O.B.	1.01	....	1.01	1.02	1.03	.94	$0.99	....	.83	....	....	.90	1.03	.99	.89	....	....
25-25.9	1.07	1.09	1.10	1.01	1.08	1.07	Our	1.04	....	1.05	1.06	1.07	.98	1.02	....		....	....	.94	1.07	1.01	.92	....	....
26-26.9	1.11	1.12	1.12	1.06	1.11	1.10	Pipe	1.08	....	1.09	1.10	1.11	1.01	1.06	....	....	....	....	.97	1.11	1.04	.95	....	....
27-27.9	1.15	1.15	1.15	1.10	1.14	1.14	Line	1.11	....	1.13	....	1.15	1.05	1.10	$1.04	....	....	....	1.01	1.15	1.07	.98	....	....
28-28.9	1.18	1.18	1.17	1.15	1.17	1.17	....	1.14	....	1.17	....	....	1.08	1.13	1.08	....	....	....	1.04	1.19	1.10	1.00	....	....
29-29.9	1.20	1.21	....	1.19	1.20	1.20	....	....	$1.17	....	....	....	1.12	1.17	1.12	....	....	....	1.07	1.24	1.13	1.02	....	....
30-30.9	1.23	1.24	....	....	1.23	1.22	....	....	1.21	....	....	....	1.15	1.21	1.15	....	$1.01	$1.09	1.10	1.28	1.16	1.04	....	F.O.B.
31-31.9	....	....	....	....	....	1.24	....	....	1.25	....	....	....	1.19	1.24	1.19	....	1.04	1.12	1.14	....	....	1.06	....	Ship
32-32.9	....	....	....	....	....	....	....	....	1.29	....	....	....	1.23	1.28	1.23	....	1.07	1.14	1.17	....	....	1.09	....	....
33-33.9	....	....	....	....	....	....	....	....	1.32	....	....	....	1.27	....	1.26	....	1.10	1.17	....	....	....	1.11	....	$1.22
34-34.9	....	....	....	....	....	....	....	....	1.36	....	....	....	1.31	....	1.30	....	1.13	1.20	....	....	....	1.13	....	1.25
35-35.9	....	....	....	....	....	....	....	....	....	....	....	....	1.35	....	....	....	1.16	1.22	....	....	....	....	$1.23	1.28
36-36.9	....	....	....	....	....	....	....	....	....	....	....	....	1.39	....	....	....	1.19	1.25	....	....	....	....	1.26	....
37-37.9	....	....	....	....	....	....	....	....	....	....	....	....	1.43	....	....	....	1.22	....	....	....	....	....	1.29	....
38-38.9	....	....	....	....	....	....	....	....	....	....	....	....	1.47	....	....	....	1.25	....	....	....	....	....	....	....
39-39.9	....	....	....	....	....	....	....	....	....	....	....	....	1.51	....	....	....	....	....	....	....	....	....	....	....
40-40.9	....	....	....	....	....	....	....	....	....	....	....	....	1.53	....	....	....	....	....	....	....	....	....	....	....

Fuel Oil Remains Scarce; Gasoline Stocks Reduced

Difficulties of moving enough crude oil and products to the East Coast and shortage of heavy-fuel oil have continued the most important problems of the industry, latest statistics on operations indicated; although comparatively good demand for gasoline has given encouragement, record breaking stocks having been whittled down a little in each of the past two weeks, in the face of large current production.

Retarded by submarine attacks on the tankers that bring in supplies of crude, daily average refinery runs on the East Coast were lowered 22,000 barrels for the week ended March 28, the American Petroleum Institute reported. Having processed 461,000 barrels of crude daily, plants of the district utilized only 64.6 percent of rated capacity. Having reduced runs, they turned out 8000 barrels daily less of gasoline than in the previous week. But with demand existing for all supplies available, stocks were reduced 503,000 barrels in the 7-day period, or at the rate of 72,000 daily. Similarly, supplies of heavy-fuel oil were insufficient to meet demand, and refiners took from storage 479,000 barrels within the week (68,000 daily), despite desperate efforts to fill requirements. The light-fuel oil situation, in contrast, continued free of troubles, and 5,000 barrels daily of that product went to storage.

The scarcity of heavy-fuel oil was a national as well as an Eastern problem, as other districts were called upon to help relieve the East Coast shortage. For the nation as a whole, stocks of that product were reduced nearly a million barrels, with the Texas Gulf Coast drawing on storage nearly as heavily as the Atlantic Coast district, that is, to the extent of 50,000 barrels daily, while the Middle West took out of the tanks over 6000 daily and California 15,000 a day. No district added any material amount of residual fuel to storage. The national inventory of 83,045,000 barrels as of March 28 was nearly 12,000,000 barrels (12 percent) under the amount on hand at this time last year, and it included only about 23,000,000 barrels outside California, as that state held nearly 60,000,000 barrels. The 5,618,000 barrels on hand in the East Coast district at the end of March, 1942, compared with 8,371,000 barrels on March 31, 1941. California's 59,713,000 barrels for March 28, 1942, compared with 68,661,000 barrels of residual fuel oil and heavy crude reported by the Bureau of Mines for March 31, 1941.

Stocks of gas oil and distillate fuel in the United States were reduced 534,000 barrels in the week of March 28, a seasonal trend, despite additions in the East Coast, Appalachian, and Coastal Louisiana districts. Reductions were small, however, except on the Texas Gulf Coast, where a 481,000 barrel withdrawal (nearly 70,000 daily) occurred.

United States stocks of finished and unfinished gasoline were reduced 507,000 barrels, or at the rate of 72,000 daily, in the week ended March 28, but the 105,624,000 barrels left on hand was 6,538,000 barrels (6.6 percent) more than the 99,086,000 barrels in storage a year previously, whereas demand currently is running below last year's trend. (The Bureau of Mines has forecast that the total demand for motor fuel will be 2 percent smaller in April, 1942, than in April, 1941, although there would have been indicated a smaller decrease or an increase if there had not been an abnormally high demand in April of last year.)

Gasoline came from storage in substantial volume on the Texas Gulf Coast and in California as well as on the East Coast, and there were nominal withdrawals in Oklahoma - Kansas, Coastal Louisiana, and North Louisiana-Arkansas districts. The product went to storage in the amount of 470,000 barrels in the Middle West and 112,000 in the Appalachian region, while there were small additions also in the Rocky Mountain and Inland Texas districts.

Districts that ran less crude to stills than in the previous week included the East Coast, Coastal Louisiana, North Louisiana-Arkansas, and the Rocky Mountains, but gains in remaining districts resulted in an aggregate increase of 68,000 barrels for the nation, as plants processed 3,667,000 barrels daily (78.3 percent of capacity), which rate was 43,000 barrels daily (1.2 percent) above that in the like week last year.

Crude Oil Production in the United States

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels)

STATE OR DISTRICT	[1]OPC Allocation in April	PRODUCTION IN WEEK ENDED Mar. 28	April 4
Arkansas	74,000	76,550	76,700
California	659,800	585,300	560,100
Long Beach		33,600	31,700
Midway-Sunset		50,100	50,300
Kettleman Hills		26,300	21,500
Wilmington		94,000	91,700
Rest of State		381,300	364,900
Colorado	6,900	5,950	5,650
Illinois	354,400	326,900	316,000
Salem		49,100	47,300
Louden		53,200	53,000
Other New Pools		212,450	203,900
Old Pools		12,150	11,800
Indiana	18,200	20,200	19,400
Kansas	253,400	238,900	246,700
Kentucky	12,800	12,350	12,700
Louisiana	313,000	334,400	317,750
North		80,350	80,950
South		254,050	236,800
Michigan	60,200	46,200	45,950
Mississippi	49,800	93,850	98,000
Missouri		130	130
Montana	23,700	21,400	21,400
Nebraska	5,000	4,150	4,100
New Mexico	86,000	93,500	82,700
New York	14,600	13,100	13,150
Ohio	10,100	9,700	9,950
Oklahoma	436,900	387,350	389,900
Oklahoma City		74,250	79,050
Seminole Area		101,150	100,650
Rest of State		211,950	210,200
Pennsylvania	49,900	52,800	50,650
Tennessee		30	30
Texas	[2]1,134,000	1,411,900	1,042,200
Upper Gulf Coast		285,150	218,200
East Texas Field		368,550	225,800
Rest of Eastern Texas		89,900	78,900
Lower Gulf Coast		110,050	74,900
Southwest Texas		66,300	42,700
South Central Texas		20,650	18,700
West Texas		232,550	178,600
North Texas		149,200	146,800
Panhandle		89,550	58,500
Utah		15	15
West Virginia	15,200	10,600	10,250
Wyoming	88,900	90,400	88,420
Total United States	3,666,800	3,835,675	3,411,845

[1] Production rates recommended for states by Office of Petroleum Coordinator, on Basis of Bureau of Mines forecast of the nation's daily average requirements for domestic crude during month. State conservation authorities have prescribed allowables calculated to hold actual production within OPC allocations. (Details on state allowables published March 30, 1942, page 47.)

[2] Most Texas fields were ordered shut down 18 days: April 3, 4, 5, 6, 10, 11, 12, 13, 17, 18, 19, 20, 24, 25, 26, 27, 29, and 30.

Higher Prices of Oils Indicated as Imperative

Following the recent action of the Office of Price Administration in authorizing higher prices for Pennsylvania grade crude and for refined products in the East Coast district, there have been hopes in the industry that other upward readjustments will be permitted, to cover increased costs and to stimulate the wildcatting which is needed but which has not been forthcoming.

One of the adjustments said to be under consideration is an amendment to Price Schedule 88 which would allow California companies to base their maximum prices for heavy fuel oils on sales made within 60 days prior to October 15, 1941, instead of upon the lowest published quotations. It is claimed that such published prices were lower than the actual market.

On the East Coast, jobbers sought raising of ceilings on No. 1 and No. 2 fuel oils to give them larger margins, and the OPA indicated it was considering their requests, but that increases would not be authorized "at this time." The agency pointed out that some relief had been provided in the recent order which permitted an increase of 4/10 cent a gallon in prices of those light fuel oils. It stated, however, that conditions in the industry were under constant study and that adjustments in prices would be made as required by the changing situations.

From numerous quarters came complaints that the increases in prices of products in the East Coast district were inadequate to cover increased transportation costs; and even as these complaints were made, there came a government-approved further increase in tanker rates, which appeared to make imperative the additional increases in prices of oils. A comparatively sharp advance in the Eastern prices loomed in consequence of the new tanker rates. The War Shipping Administration on April 2 authorized a tanker rate of ap-

proximately 3 cents a gallon between Gulf Coast or Caribbean and North Atlantic ports. The basic rate is 40 cents per 42-gallon barrel on gasoline or kerosene between Port Arthur and New York, but in the latter half of February and March, a surcharge of 37½ percent of the basic rate was permitted, to cover high war risk insurance rates. In the order of April 2, however, authority was given for a surcharge of 200 percent of the basic rate on shipments from United States ports and Tampico to points between Miami and Montreal; and for a surcharge of 225 percent on shipments between Caribbean ports and points between Miami and Montreal. The war risk insurance rate between the Gulf Coast and North Atlantic ports was $2.50 per $100 until the middle of March, when it was raised to $4; and on April 1 the rate was advanced to $6 per $100, in reflection of continued heavy losses through sinkings by submarines.

While prices in the industry are regarded as generally too low, from well to retail outlet, the industry is being asked to stay under the ceilings fixed by the OPA in all transactions, even the emergency movement of fuel oils from the Middle West and other districts to the East Coast, which threaten to entail great sacrifices on the part of any large or small companies that cooperate. Heretofore, losses sustained in rail shipping oils to the East have been submerged in the over-all cost of all shipments into the district, with relatively lower tanker rates holding down the average cost per barrel or gallon sent to the area. However, with tanker rates now sharply higher, it appears that prompt lifting of the ceilings on petroleum product prices in the East Coast district will be necessary.

Although markets in the Southwest have been adversely affected by the lack of transportation facilities for moving products out, there was some improvement last week. Pipe line proration of crude purchases was lifted in West Texas and New Mexico by a large purchaser, although retained in Southwest Texas; and somewhat better movement of gasoline into market channels was indicated in the Mid-Continent and on the Gulf Coast, as record-breaking stocks were somewhat reduced. In most districts there was a slowing down of orders for heating oil, as the season of heavy consumption drew toward the close; although there was a long term prospect of shortage of the lighter fuel oils, due to use of those products in helping to meet the demand for residual fuel oil.

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines' basis, except those on crude stocks, which are from Bureau of Mines weekly reports.

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels))	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1939:						
February 18	3,324,300	[6]3,125,000	271,252,000	83,075,000	23,747,000	111,349,000
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
August 5	[2]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[1]1,600,800	3,475,000	246,982,000	73,475,000	37,722,000	[2]116,237,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	[2]39,562,000	114,786,000
1940:						
January 6	3,584,450	[6]3,370,000	238,581,000	82,002,000	32,183,000	105,247,000
February 10	3,688,100	3,460,000	239,510,000	91,649,000	26,007,000	[6]102,344,000
March 16	[2]3,890,050	3,500,000	246,762,000	100,616,000	24,075,000	103,558,000
April 6	3,745,000	3,455,000	251,897,000	101,690,000	[6]23,551,000	105,099,000
April 20	3,858,550	3,535,000	254,881,000	[2]102,817,000	24,779,000	103,323,000
June 22	3,846,450	[2]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
September 14	3,647,400	3,580,000	262,475,000	83,300,000	46,648,000	[2]109,135,000
October 19	3,667,550	3,525,000	262,098,000	81,656,000	[2]49,051,000	108,141,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	[6]3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
1941:						
January 4	3,367,200	3,600,000	260,643,000	85,053,000	42,403,000	[2]102,448,000
January 11	[6]3,364,450	3,565,000	259,342,000	86,328,000	41,094,000	102,281,000
January 18	3,611,900	[6]3,490,000	259,934,000	87,351,000	39,920,000	101,213,000
March 29	3,746,550	3,625,000	[2]266,187,000	[2]99,727,000	29,949,000	96,152,000
April 12	3,603,650	3,630,000	265,160,000	98,654,000	[6]28,381,000	95,471,000
July 5	3,658,200	3,745,000	258,070,000	90,064,000	36,925,000	[6]92,635,000
October 4	3,860,750	4,015,000	246,144,000	[6]80,870,000	49,553,000	96,016,000
October 18	4,110,550	[4]4,120,000	243,605,000	82,584,000	52,403,008	95,800,000
November 15	4,086,850	4,010,000	[6]240,399,000	83,412,000	[2]54,983,000	95,993,000
1942:						
January 3	4,038,000	3,961,000	244,440,000	92,987,000	49,357,000	95,857,000
January 10	4,229,150	3,891,000	244,364,000	94,204,000	47,250,000	94,885,000
January 17	4,045,600	3,723,000	246,267,000	95,617,000	43,984,000	92,703,000
January 24	4,311,300	3,885,000	248,164,000	96,363,000	41,863,000	92,079,000
January 31	3,871,350	3,848,000	250,740,000	97,810,000	40,674,000	91,189,000
February 7	[4]4,336,900	3,853,000	252,366,000	100,224,000	40,038,000	90,859,000
February 28	4,015,650	3,675,000	259,373,000	105,635,000	34,547,000	88,285,000
March 7	3,934,350	3,530,000	260,064,000	106,668,000	33,386,000	87,531,000
March 14	3,515,300	3,588,000	262,063,000	[1]107,229,000	32,831,000	85,489,000
March 21	3,691,700	3,599,000	261,724,000	106,131,000	32,290,000	84,025,000
March 28, 1942	**3,819,850**	**3,667,000**	.....	**105,624,000**	**31,756,000**	**83,045,000**
March 28, 1941	3,746,550	3,624,000	[4]263,857,000	99,086,000	30,548,000	94,723,000
Amount Change:						
From Week Ago	+128,150	+68,000	[5]—339,000	—507,000	—534,000	—980,000
From Year Ago	+73,300	+43,000	—2,133,000	+6,538,000	+1,208,000	—11,678,000
Percent Change:						
From Year Ago	+1.9	+1.2	—0.8	+6.6	+3.9	—12.3

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, March 22, 1941.
[5] Lowest since October, 1922, due to shut down of six Mid-Continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] Latest weekly change.

Production Sharply Lower; Several States Decline

United States production of crude oil and related fuels dropped sharply to 3,411,845 barrels daily for the week ended April 4. That was 423,830 barrels less than daily average output in the previous week and approximately 255,000 barrels less than the daily average production recommended for April by the petroleum coordinator.

The sharp decrease was caused primarily by a drop of Texas production to 1,042,200 barrels daily from 1,411,900 the week before, as fields of the state were shut down during four of the seven days of the week, whereas they were closed in only three days in the preceding period.

New Mexico also was down substantially, to 82,700 from 93,500. Louisiana dropped to 317,750 barrels daily from 334,400 the week before. Illinois was off to 316,000 from 326,900. California declined to 560,100 from 585,300.

Kansas rose to 246,700 from 238,900, Oklahoma to 389,900 from 387,350, Mississippi to 98,000, a new high, from 93,850, and Arkansas to 76,700 from 76,550.

Seek Safety Instructors For Bureau of Mines

The Federal Civil Service Commission has announced that it is recruiting safety instructors for positions in the Bureau of Mines, Department of the Interior. The salary is $1800 a year. Appointments will be made in the fields of coal and metal mining, quarrying, tunneling, and petroleum. All applications for the written general test must be on file with the U. S. Civil Service Commission, Washington, D. C., not later than March 30, 1942.

Two years' experience is required in a responsible position such as mine or section foreman, shift or fire boss, or safety inspector or engineering in the mining or petroleum industries. Before persons can be appointed from the employment lists established as a result of the examination, they must possess either a Bureau of Mines first-aid or mine-rescue certificate. Applicants must be between 25 and 35 years of age, and must meet certain rigid physical standards.

The duties of these positions include instructing classes in first-aid, accident prevention, and in the use of gas masks. Addressing safety meetings and assisting with first-aid contests may also be part of the work. Instructors are subject to call at any time to help with rescues and recovery work following disasters. They will also assist in investigating the causes of disasters.

Copies of the announcement and application forms may be obtained at first- and second-class post offices or from the Civil Service Commission in Washington, D. C. Qualified persons are urged to apply.

DR. WALTER H. BUCHER, professor of geology at Columbia University, addressed the Shreveport Geological Society March 31 on "Geosynclinal Belts and Orogeny."

U. S. Field Operations

Illinois

First Reports at New High for Year

Thirty four first reports in Illinois for week ended March 31, a new record for 1942; completing White County discovery well; rigging up tools to drill plug at prospective Jefferson County pool opener.

White County: Sun's Hertlein 1, C S½ SE NW 13-4s-9e, five miles west and a mile north of Crossville, swabbed 161 bbls oil in 24 hours after acid in McClosky 3259-64. It is a mile and a half from other production and swabbed 40 bbls daily natural.

Jefferson County: Deaton-Bear's Howard 1, NE NE NW 5-1s-3e, four miles east of the Dix field, rigging up standard tools to drill plug on McClosky saturation at 2621-26 ft. On drill stem test open one hour 580 ft of oil was recovered.

Richland County: Pure's Murvin B-1, NW NW 27-4n-9e, south of Dundas Consolidated field set with pipe on Cypress, total depth 2710 ft.

Pure's A. C. Roberts A-1, C SW NW 12-4n-9e, swabbing after acid, total depth 2970 ft in McClosky.

Pure's Albert Grubb 1, W½ SW SE 36-3n-8e, two miles east of Clay City field, pumped 3 bbls of fluid in 24 hours, total depth 3025 ft, McClosky, after acid.

Marion County: Louis Lilly's Leonard Estate 1, NE SE NE 17-1n-1e, mile east of Centralia and 1200 ft southwest of 20-year-old Brown well, set casing on Cypress (Stein) sand at 1666-72 ft. Brown 1, a Stein producer, has produced 5 bbls a day for years, but is only well in area.

Hamilton County: Whisenant & Trenchard and Delta Development Co.'s Johnson 1, C W½ SE NE 3-6s-7e, three miles east of Dale field, drilling 3100 ft, nearing Bethel; reported running low structurally.

Clay County: Texas' Landwehr 1, NW SW NE 8-5n-7e, south offset to Cameron discovery north of Bible Grove, recovered bleeding Cypress core at 2495-2505 ft but was drilling ahead to McClosky, formation from which discovery well is flowing. Landwehr 1 topped Glen Dean at 2300 ft, Golconda 2375 ft, Barlow 2460-72 ft, Cypress 2474 ft.

COMPLETIONS

Clay County—Gulf's Franklin 1, apx. se ne ne 35-4n-7e, Tar Spgs 2315-28 ft, td 2328 ft, 95 bbls.

Pure's Grahn A1, ne nw 8-5n-7e, abnd 2889 ft.

Crawford County—Ohio's Ducommun 28, nw se se ne 35-6n-13w, abnd 4654 ft.

Effingham County: Wildcat—Smith & Herbert's Krouger 1, ne se ne 35-8n-6e, abnd 2587 ft.

Franklin County: Wildcat—J. W. Menhall's Valier Coal Co.'s 1, se sw se 1-6s-1e, abnd 2860 ft.

Hamilton County—Magnolia's Hamilton 2, ne se sw 24-6s-5e, A. V. 3101-12 ft, td 3112 ft, 135 bbls.

Texas Co.'s Brown Comm. 1, apx c w½ se ne 34-6s-6e, A. V. 3102-3212 ft, td 3112 ft, 232 bbls.

Jasper County—Pure's Pryor A2, nw se 7-5n-10e, McC 2827-33 ft, 2848-53 ft, td 2865 ft, 261 bbls.

Perry County—Shell's Schubert 1, se nw sw se 23-4s-2w, abnd 2977 ft.

Richland County—Longhorn Oil's Asifield 1, c w½ nw se 21-2n-14w, abnd 3198 ft.

Wayne County—Wiser's Dickey C3, ne sw sw ne 3-1s-6e, McC 3169-77 ft, 3181-85 ft, td 3227 ft, 650 bbls.

Pure's Reed 1, c s½ se sw 17-1s-6e, Rosi 3152-56 ft, td 3248 ft, 243 bbls.

Wayne County: Wildcat—Bell Bros.' Hand 1, c e½ sw nw 11-3s-5e, abnd 3418 ft.

White County—Magnolia's Jones Est. 1, sw se ne 7-4s-10e, Tar Spgs 2513-19 ft, 2477-86 ft, L. O'H 3174-84 ft, td 3260 ft, 145 bbls oil.

Minerva Oil Co.'s Ramsey 1, c n½ sw ne 33-6s-10e, A. V. 2904-12 ft, td 2917 ft, 86 bbls.

Kingwood & Sinclair's Clow 1, sw ne nw 12-7s-8e, Walts 2181-99 ft, td 2199 ft, 75 bbls.

Carter's Edwards 1, ne nw se 15-7s-8e, Walts 2169-83 ft, td 2190 ft, 23 bbls.

OLD WELLS DEEPENED

Marion County—Tide Water's Miller 1, ne ne ne 18-1n-2e, A. V. 1909-22 ft, Benoist 1855-79 ft, otd 1879 ft, td 1922 ft, 25 bbls.

Wabash County—Lustergarten et al's Mullinax 1, nwc ne ne 16-1n-12w, McClosky 2291-93 ft, otd 200 ft, td 2307 ft, 125 bbls.

White County—Tide Water's Dennis 15, nw

Results on Industry's Prospecting Fronts

Illinois: White County well makes mile and half step out; several wildcats showing.

California: Week's wildcat results negative.

Kansas: Three pools have extensions; fourth try apparently failing.

Louisiana Coast: Port Barre has new sand on flank.

Michigan: Increased drilling in prospect.

Nebraska: Dawson pool well opens first production from Viola.

Oklahoma: Extension for Cumberland production, Bryan County. Marshall and Lincoln County wildcats show possibilities.

East Texas: Anderson County Woodbine test looks good.

Texas Gulf Coast: Discovery at Aldine, Harris County.

North Texas: Ellenburger strike extends Clay County deep area. Potts confirmation fails.

West Texas: Two Pecos areas being joined. Outposts to two fields are failures.

Southwest Texas: Eighteen operations seeking Wilcox.

Wyoming: Cody Dome well flowing 200 barrels from new level; first 1942 discovery in Mountain area.

Summary of Drilling Operations in the United States, Week Ended April 4, 1942

	WELLS COMPLETED							WILDCAT COMPLETIONS‡					
	Completions	Oil Wells	Gas Wells	Failures	†Miscellaneous	Total 1942	Total this Date 1941	Total this Week	Oil Wells	Gas Wells	Failures	Distillate Wells	Toal 1942
Alabama	....	....	....	....	....	2	....	....	....	....	....	....	2
Arkansas	....	....	....	....	....	37	42	....	....	....	....	....	3
California	9	4	2	3	....	234	285	....	....	....	....	....	6
Colorado	1	....	....	1	....	4	3	....	....	....	....	....	....
Georgia	....	....	....	....	....	1	....	....	....	....	....	....	1
Illinois	20	10	....	7	3	542	804	3	....	....	3	....	112
Indiana	7	....	....	6	1	106	113	3	....	....	3	....	5
Kansas	25	10	....	9	6	434	498	9	1	....	8	....	98
Kentucky	3	....	....	3	....	45	60	3	....	....	3	....	3
Louisiana	22	14	....	8	....	303	346	4	1	....	3	....	49
Michigan	17	10	....	7	....	187	208	4	....	....	4	....	44
Mississippi	3	3	....	....	....	46	45	....	....	....	....	....	11
Missouri	....	....	....	....	....	9	15	....	....	....	....	....	....
Montana	4	4	....	....	....	40	55	....	....	....	....	....	....
Nebraska	5	2	....	3	....	14	22	3	....	....	3	....	5
New Mexico	13	7	....	6	....	118	89	....	....	....	....	....	8
New York	23	12	....	....	11	346	169	....	....	....	....	....	....
Ohio	16	1	8	6	1	342	372	....	....	....	....	....	....
Oklahoma	24	9	1	13	1	470	485	9	2	....	7	....	75
Pennsylvania	54	50	2	1	1	940	882	....	....	....	....	....	....
Tennessee	....	....	....	....	....	2	5	....	....	....	....	....	....
Texas	106	60	....	42	4	2,023	2,321	25	2	....	23	....	302
West Virginia	11	....	9	2	....	201	176	....	....	....	....	....	....
Wyoming	3	2	....	1	....	24	25	....	....	....	....	....	1
Total this week	366	198	22	118	28	6,470	7,020	63	6	....	57	....	725
Total last week	313	193	23	71	26	6,171	6,505	37	5	2	28	2	663
Total this year	6,470	3,759	525	1,528	658	....	....	725	85	9	629	2	....

† Includes old wells deepened, water intake, gas input, and salt water disposal wells.
‡ OPC program calls for 4,000 wildcats in 1942, of which 624 should produce oil and 116 gas, leaving 3,260 dry.

nw ne 33-4s-14w, Ben 2691-2730 ft, Cyp 2572-2612 ft, otd 2730 ft, td 2734 ft, 143 bbls.

WILDCAT STARTS

Clay County—Shaffer & Toller's Large 1, nw se 24-3n-6e, dr.

Fayette County—Illinois Exploration Co.'s Stokes 1, c sw sw 1-8n-1w, lcn.

Marion County—G. Kenneth Harris et al's Huff 1, 80 ft east se se 33-2n-3e, lcn.

Seaboard's Miller 1, sw sw nw 8-3n-4e, lcn.

Richland County—E. L. Hicks' Catrell Comm. 1, c nw se 23-5n-14w, lcn.

Shelby County—Ben J. Taylor et al's Davis 1, c se sw 8-10n-4e, lcn.

Wayne County—The Carter Oil Co.'s Wright 1, c nw sw 23-3s-6e, lcn.

New Penn Dev. Corp.'s Fisher 1, w½ nw nw 27-2s-9e, lcn.

INDIANA

COMPLETIONS

Benton County: Wildcat—D. P. Hynes (Palmer's) Atkinson 1, nw nw nw 3-25n-7w, abnd 1154 ft.

Harrison County: Wildcat—Robert Davis' Fee 1, sw sw se 26-2s-3e, abnd 926 ft.

Posey County—Carter Oil et al's Oeth 1, sw ne sw se 36-6s-14w, abnd 2490 ft.

Posey County: Wildcat—John Lindas' Spencer 1, se nw nw 24-7s-13w, abnd 1153 ft.

Sullivan County—S. E. Bailey's Mann 2, se se sw 25-8n-11w, abnd 390 ft.

Vanderburg County: Wildcat—Clark C. Nye et al's Christian Ziss 1(8), Irregular Sec. sw 30-5s-11w, abnd 2789 ft.

OLD WELL DEEPENED

Gibson County—R. N. Sylvestre's Potts 1, c w½ sw sw 24-1n-10w, McC 1701-05 ft, otd 1704½ ft, td 1723 ft, 97 bbls.

WILDCAT STARTS

Posey County—Carter's Allyn 1, c nw ne 28-6s-14w, lcn.

Spencer County—S. R. Travis et al's Haaf 1, c se nw 20-6s-5w, lcn.

Sullivan County—Sun's Knotts 1, lcn in Sur 19 19-6n-9w, lcn.

Sun's Poston 1, c sw nw 34-7n-9w, lcn.

Vanderburg County—R. E. Johnston's Karn et al 1, nw nw 19-6s-11w, lcn.

KENTUCKY

COMPLETIONS

Hancock County: Wildcat—O. D. Vickers et al's Hagman 1, 1-Q-34, abnd 550 ft.

Henderson County: Wildcats—A. V. Smith's Walker 1(2), 6-N-25, abnd 575 ft.

Carter's Toy 1, 21-P-24, abnd 2597 ft.

WILDCAT START

Henderson County—Walter Chenault et al's Glenmore Distl. Co. 1, 18-Q-26, lcn.

Oklahoma

Cumberland Production Extended Northwest

Forty-fifth producer extends Cumberland northwest; Marshall County wildcat appears favorable; Chandler wildcat testing show of oil; The Texas Co. stakes two tests on northern flanks of Apache field.

Bryan County: Pure Oil Co.'s Williams 1, 109, SEc NW 20-5s-7e, extends Cumberland field soon to be inundated by Red River dam ¾-mi northwest, topped McLish sand zone 5880 ft, drilled to 5910 ft, set packer on sand top and with tool open 30 min was estimated 1200-bbls through ⅝-in choke.

Marshall County: Marshall et al's McCormick 1, SEc 4-6s-6e, wildcat believed on parallel high to Cumberland structure, showing favorably in the Bromid-Wilcox zone, test cored 3032-38 ft, showed fine sand lightly stained and with good oil and gas odor, drilling ahead for more porous sand.

Lincoln County: Mangolia Petroleum Co.'s Bouse 1, C NW NE 23-14n-4e, east of Chandler, plugged back to Red Fork sand at 4092-4125 ft from dry Wilcox sand, shot 50 qts, cleaning out with slight show of oil; may open pool.

Caddo County: The Texas Co.'s Starr 1, NE SE NW 34-6n-12w, is location ¾ mi northwest of production in northern end of Apache field, as is operator's Oxley 1, NE SE SE 35, ¾-mi northeast of production.

COMPLETIONS

Caddo County: Apache—Texas Co.'s Mulkehay 5, sw se se 2-5n-12w, Bromide Prod, td 3871 ft, 5000 bbls.

Caddo County: Cement—Ray Stephens' Wilhite 3, ne sw se 28-6n-10w, Noble Sand 3282 ft, pay 3330-60 ft, td 6220 ft, pb 5325 ft, 25,000,000 gas.

Coal County: Wildcat—Ramsey Pet.'s Herinek 1, c nw nw 26-2n-9e, lime 1721-23 ft, abnd 1760 ft.

Creek County: Deep Fork—Tibbins' Wilson 6, c s½ sw se 18-14n-9e, Prue 2372 ft, td 2412 ft, shot 70 qts, pump 38 bbls.

Creek County: Cushing—Sinclair-Prairie's Gooden 14, 80 ft e of c e½ nw se 16-17n-7e, Bartlesville 2704 ft, pay 2755-2811 ft, td 2814 ft, pb 2811 ft, shot 80 qts, pump 32 bbls oil, 80 bbls water.

Creek County: Glenn—Gulf's Vowell 33, ne se ne sw 16-17n-12e, base of Glenn 1582 ft, td 1584 ft, input well.

Hughes County: Wildcat—Leslie Walker's Adams 1, se se sw 35-7n-9e, abnd 795 ft.

Jackson County: Altus—Harwill & Hill's Guyerman 6, ne sw sw 14-1n-20w, Granite Wash 1380-88 ft, abnd 1770 ft.

Okfuskee County: Wildcats—Mid-Continent's Harris 1, ne ne se 7-11n-7e, Osw 2730 ft, Prue 2770 ft, Skinner 3210 ft, Inola 3610 ft, Brown lime 3775 ft, Booch 3870-85 ft, dry, Crom 3971 ft, Mayes 4408 ft, Wood 4550 ft, Misener 4579 ft, Hunton 4582 ft, abnd 4900 ft.

Mid-Continent's Custer 1, c ne se 9-11n-9e, Osw 1480 ft, 1st Cal 1565-95 ft, 2nd Cal 1752-65 ft, Senora 2080 ft, Allen 2095 ft, Booch 3052 ft, Glic 3189-3280 ft, Wap 3435½ ft, Crom 3437½ ft, Miss Carey 3620 ft, Mayes 3740 ft, Sycamore 3922 ft, Woodford 3924 ft, Hunton 3956 ft, Sylvan 4043 ft, Dense 4154 ft, Wx 4173-74 ft, sdy dolo 4190 ft, 2nd Wx 4205 ft, abnd 4214 ft.

K. G. G. F. & Portable Drlg.'s Engelman 1, nw ne nw 30-11n-10e, Brown lime 2490 ft, Booch 2580-95 ft & 2655-60 ft, Glic zone 2840 ft, Wapa 3118 ft, Crom 3128-33 ft, Syc 3622 ft, Wood 3630 ft, Misener 3643 ft, Hunton 3646 ft, Sylv 3735 ft, Viola 3825 ft, Dolo 3851 ft, Sdy dolo 3877 ft, td 3895 ft, 70 bbls oil & 170 bbls water, 36-gr.

Oklahoma County: Oklahoma City—Clark & Co.'s Merrill 1, nw ne sw sw 10-11n-3w, Wilcox 6415 ft, td 6490 ft, shot 120 qts, pump 56 bbls.

Harper-Turner's Harper 3, nw ne sw 17-14n-2w, Bartlesv 5840 ft, td 5847 ft, flow 45 bbls.

Okmulgee County: Aztec—Roundsaville's Deresaw 1A, sw sw ne ne 31-12n-12e, Senora 1185-1217 ft, Salt Sands 1495-1550 ft, Booch 1911-30 ft, td 1930 ft, shot 100 qts, pump 12 bbls.

Okmulgee County: Pollyanna—Minshall & Lowery's Lewis 3, nw sw nw 33-16n-11e, Glenn 1990 ft, td 2052 ft, pump 35 bbls.

Osage County: Osage City—J. A. Green's 8, se nw nw sw 11-21n-8e, Burgess 2540 ft, abnd 2558 ft.

Barnsdall's W. F. 4, sw se ne nw 30-21n-9e, abnd 352 ft.

Osage County: Wildcats—Norbla's Osage 1, nw nw sw 21-24n-6e, Osw 2595 ft, Cherokee 2638 ft, Prue 2700-02 ft, Verd lime 2767-72 ft, Skinner 2786 ft, Inola 2798-2802 ft, Burbank 2802 ft, Miss cht 2953 ft, abnd 2994 ft.

Blackwell O&G et al's Osage 1, sw se se 28-28n-8e, Miss ls 2514 ft, abnd 2969 ft.

Payne County: Wildcat—E. S. Adkins et al's Borell 1, c ne ne 33-19n-1w, Avant 3515 ft, Layton 3774 ft, Hog 4098 ft, Ccb 4310 ft, Osw 4464 ft, Bart 4800 ft, Miss 4934 ft, Viola 5196 ft, 1st Wx 5300-26 ft, 2nd Wx 5398-5441 ft, abnd 5441 ft.

Pawnee County: Wildcat—Johnson O&R's Lewis 1, c s½ nw se 20-20n-9e, Redford 2127-65 ft, Miss 2439 ft, abnd 2514 ft.

Pontotoc County: Unnamed—Turner King's Traghler 1, sw sw ne 11-4n-6e, sand 1204-14 ft, abnd 1214 ft.

Pottawatomie County: Wildcat—Cities Service et al's Ft. Cobb Oil 1, sw ne ne 4-8n-3e, Base Pont 1230 ft, Hogs 3240 ft, Calvin 4281-4340 ft, Hunton 4768 ft, Viola 5110 ft, Dolo 5193 ft, td 5465 ft, pb 5200 ft, 200 bbls.

Stephens County: Empire—H. Day & R. Carson's Bullard 1, c n½ ne 34-1s-8w, sand 2280-2305 ft, abnd 2305 ft.

WILDCAT STARTS

Carter County—Carter Mullaby's McCain 1, c sw nw 35-4s-3w, bd.

Garvin County—Pure's Teeter 1, se sw nw 34-4n-1e, dr.

Kay County—W. M. McKnabb et al's Williams 1, se se sw 27-28n-2w, rur.

Kiowa County—B. G. Walrick's Wayne 1, ne se se 2-7n-18w, dr.

McIntosh County—Metzger & Futz' Dodson 1, 130 ft n of c e½ ne se 22-14n-18e, dr.

Okfuskee County—McBride's Replogle 1, ne nw sw 13-11n-10w, dr.

Osage County—A. G. Oliphant's Osage 1, ne sw se 3-27n-10e, dr.

Pottawatomie County—Mid-Continent et al's Caldwell 1, nw s[illegible] 1-8n-3e, dr.

Smith Bros.' Fu[illegible]s 1, c sw ne 33-8n-3e, dr.

Campbell & W[illegible]'s Harding 1, c ne sw 13-8n-4e, c & p.

Ed Highfill et al's Boyd 1, ne se nw 21-8n-4e, c & p.

Kansas

Barton and Reno County Pools Given Extensions

Barton, Reno County pools given major extensions; Hendrickson pool outpost showing dismally; operator to deepen Smyers pool offset; Chase pool extended.

Barton County: Black-Marshall Oil Co.'s Dolechek 1, SE SE SE 24-16s-12w, extended Kraft-Prusa pool ¼-mi southwest, well given state potential of 136 bbls oil daily at 3376 ft in Gorham sand, lends optimism to several active wildcats in nearby territory.

Reno County: Lion Oil & Refining Co.'s Phillips 1, SE SW NE 2-23s-10w, ½-mi southeast extension of the Hendrickson pool, drilled to 3729 ft in Viola lime topped at 3695 ft, rated at 1457 bbls oil per day by conservation officials. Stanolind Oil & Gas Co.'s Peterson 1, SEc NW Sec. 2, ½-mi southwest outpost to the field loomed as an apparent failure, drilled to 3761 ft in Viola lime topped at 3720 ft, well made 7 gals oil and 24 gals of water per hr, operator may acidize.

Rice County: Stoddard & Dutton et al's Murphy 1, NE SE 21-19s-9w, extends Arbuckle lime production in northern end of Chase pool, drilled to 3248 ft in lime topped at 3216 ft, the well was good for 6 bbls oil per hr on 24-hr preliminary test.

COMPLETIONS

Barton County: Kraft—Shell's Soeken A, ne sw sw 15-17s-11w, Arbuckle 3272 ft, td 3380 ft, 100 gals acid, 3000 bbls potential.

Barton County: West Silica—Hollow Drlg.'s Scheufler 3, ne nw ne 19-20s-11w, Arb 3306 ft, td 3324 ft, 4500 gals acid, pump 75 bbls.

Broderick & Bordon's Haggy 2, ne sw sw 20-20s-11w, Arb 3313 ft, td 3319 ft, 500 gals acid, pump 379 bbls.

Barton County: Wildcats—Falcon-Seaboard et al's Martz 1, se se nw 25-16s-15w, Anhy 978 ft, Lansing 3243 ft, Congl 3460 ft, Arb 3509 ft, abnd 3540 ft.

E. B. Shawver's Berscheidt 1, sw nw nw 25-19s-12w, Anhy 587 ft, Ft. Riley 1680 ft, Florence 1785 ft, Topeka 2649 ft, Lansing 3101 ft, Simpson 3362 ft, Arb 3372-74 ft, abnd 3402 ft.

Greenwood County: Semi-Wildcat—C. P. Welch's Alspaugh 1, sw sw nw 16-28s-12e, Kansas City 900 ft, abnd 1066 ft.

Leavenworth County: Wildcat—Ryan Consolidated's Lanning 1, c sw nw 22-11s-21e, Stanton 105 ft, Base Hertha 493 ft, Miss 1235 ft, Kinderhook 1625 ft, Hunton 1681 ft, Viola 1775 ft, Simpson Sand 1901 ft, Arbuckle 1963 ft, abnd 2033 ft.

Reno County: Wildcat—Earl Wakefield et al's Tidd 1, c e½ ne ne 2-24s-10w, Anhy 415 ft, Ft. Riley 1680 ft, Florence 1780 ft, Topeka 2802 ft, Lansing 3287 ft, Congl 3604 ft, Miss 3658 ft, Kinderhook 3698 ft, Viola 3853 ft, Simpson 3935 ft, Arb 4022 ft, abnd 4055 ft.

Reno County: NE Peace Creek—Leader Oil's Tonn 4, sw s se 11-23s-11w, Viola 3739 ft, pay 3746-3748 ft, td 3749 ft, 500 gals acid, potential 3000 bbls.

Rooks County: Wildcats—George Vance et al's Moos 1, 6-9s-17w, c e½ se se 6-9s-17w, Arb. 3390-3406 ft, td 3406 ft, 4500 gals acid, 200 bbls fluid, 18 percent water.

Phillips' Mary 1, se se nw 15-9s-17w, Anhy 1310 ft, Topeka 2920 ft, Lansing 3183 ft, Base Kinkaid 3456 ft, Congl 3492 ft, Simpson 3530 ft, Arbuckle 3536 ft, abnd 3648 ft.

Rush County: Wildcat—Luther Mackall's Herrman 1, c e½ se ne 2-16s-18w, Anhy 1135 ft, Ft. Riley 2090 ft, Florence 2190 ft, Lansing 3265 ft, Congl 3821 ft, sandy quartizite 3551 ft, abnd 3576 ft.

Russell County: Davidson—Texas Co.'s Borell 1, c n½ nw ne 33-15s-11w, Arb 3203 ft, td 3211 ft, 500 gals acid, 240 bbls.

Russell County: Wildcat—R. E. Day's Nuss 1, ne ne sw 15-15s-11w, Congl 3219 ft, Arb 3256 ft, abnd 3290 ft.

Russell County: Hall-Gurney—Brunson Drlg.'s Driscoll 1, sw ne sw 27-14s-14w, Gorham 3195 ft, td 3200 ft, pump 406 bbls.

M. E. Trapp's Gross 1, c w½ nw ne 5-15s-13w, Lansing 2880 ft, td 2923 ft, 10,000 gals acid, pump 530 bbls oil.

Russell County: Trapp—Gulf's Hoffman 14, se nw sw 31-15s-13w, Pre-Cambrian 3524 ft, td 3529 ft, salt water disposal well.

Russell County: West Trapp—H. H. Blair's

Dietz 1, c n½ ne nw 22-15s-14w, Arb 3339 ft, td 3349 ft, pump 59 bbls oil.

Cities Service's Krug D-9, c n½ ne se 24-15s-14w, Arb 3309 ft, td 3319 ft, 1000 gals acid, pump 313 bbls.

Stafford County: Wildcat — Continental's Cline 1, nw nw sw 30-24s-12w, Anhy 750 ft, Topeka 3090 ft, Lansing 3585 ft, Viola 4003 ft, Simpson 4107 ft, Arb 4164 ft, abnd 4225 ft.

OLD WELLS DEEPENED

Cowley County: Couch—Helmerich & Payne's Marlow 1, nw ne ne 24-30s-5e, otd 2832 ft, Miss lime 2855 ft, abnd 2856 ft.

Pratt County: Iuka—Atlantic et al's Ludens 2, c e½ sw ne 11-27s-13w, otd 4303 ft, td 4311 ft, pump 377 bbls oil.

Rooks County: Laton—Kruger's Casey 1, c n½ nw ne 15-9s-16w, otd 3329 ft, Lansing 3218 ft, td 3450 ft, 2000 gals acid, pump 5 bbls oil, 15 bbls water.

Rooks County: Westhusin—Atlantic's McClay 2, c n½ np sw 12-9s-17w, otd 3238 ft, Lansing 3125 ft, td 3313 ft, 5000 gals acid, pump 1137 bbls oil, plus 6 percent water.

Russell County: Gorham—Lario et al's Mills 1, sw se sw 12-14s-15w, otd 3068 ft, Lansing 3012 ft, td 3093 ft, pump 15 bbls.

WILDCAT STARTS

Cowley County—Westgate-Greenland's Lewis 1, sw se nw 22-31s-5e, lcn.

Reno County—Dickey et al's Schwartz 1, c w½ nw se 20-26s-5w, lcn.

Dawson Well Produces From Viola Lime

Dawson pool well opens first Viola lime production in Forest City basin; Skelly plans Viola test nearby.

Richardson County: Power Oil Co.'s Bohrer 1, C E½ SW NW 10-1n-14e, in the Dawson pool, has opened the first Viola lime production for the state and apparently will usher in a new era in the Falls City basin, topped Viola lime at 2922 ft, set casing, drilled plug and hole filled with 29-gr oil, operators to recement to shut off water from higher strata. Well is the fourth for the Dawson pool but the first to attempt a test of the Viola, it also had a good show in the Hunton lime at 2202 ft.

Skelly's Wiltse 1, C E½ NW SE 10-1n-14e, ¾ mi northeast of new producer, is slated to test the Viola lime, now circulating at 2486 ft.

Production in all four pools discovered in Nebraska to date has been from the Hunton lime only.

NEBRASKA

COMPLETIONS

Gage County: Wildcats—Bee Dee's Bankers Life 1, nw nw sw 16-3n-5e, abnd 810 ft.

Nelson Bros.' Ideus 1, c w½ e½ sw 5-3n-7e, Topeka 925 ft, abnd 1150 ft.

Richardson County: Ogle—Druger & Son's Ogle 1, c e½ ne se 9-1n-14e, Hunton 2245 ft, td 2300 ft, pb 2275 ft, pump 25 bbls oil and 25 bbls water.

Richardson County: Wildcat—H. S. Campbell's County Farm 1, c ne sw 5-1n-16e, Miss Lime 2161 ft, abnd 2181 ft.

Richardson County: Barada—Skelly's Steinbrink 2, c ne nw 36-3n-16e, Hunton 2441 ft, td 2459 ft, pb 2457 ft, pump 180 bbls.

WILDCAT STARTS

Adams County—Ohio's Bauder 1, c se sw 35-5n-9w, lcn.

Gage County—Bee Dee Oil Co.'s Bankers 1, nw nw sw 16-3n-5e, dr.

Pawnee County—H. Blazer's Wilson 1, ne nw nw 4-1n-10e, sd.

Sarpy County—Sherrod & Allen's Selbold-Parks 1, nw nw sw 3-12n-11e, dr.

MISSOURI

WILDCAT START

Ray County—Chase et al's Chase 1, sw sw sw 26-52n-26w, sp.

New Mexico

Eddy County Shallow Well Pumping 24 Barrels

Eddy County shallow discovery pumps 24 bbls daily. Offset to Lea County discovery fails to respond to acid, and wildcat in north part county due to sidetrack junk.

Eddy County: Neil Wills et al's Wills 1, C NW SW 13-20s-28e, 4 miles west of Getty Pool, was pumping 1 bbl oil hourly on preliminary test at 906 ft, having logged sand pay at 793-806 ft; 7-in at 740 ft.

Lea County: Culberson-Irwin et al's Bowman-Texaco 1, C NW NW 28-19s-32e, south offset to their recent discovery failed to make commercial producer after acidizing with 1000 gals at 2760-76 ft, having plugged back from sulphur water at 2806-11 ft to 2800 ft. Sand at 2615-25 ft due to be tested by perforating pipe. Mascho Oil Co. and American Drilling Corp.'s State 1, 7 miles northwest of Tatum shot off drill pipe at 1798 ft after failing to recover unit lost at 4046 ft, and will attempt to sidetrack.

COMPLETIONS

Eddy County—Aston & Fair's Brigham 1-B, c ne sw 26-17s-30e, flow 468 bbls ¾-in, shot 50 qts, 3239-64 ft.

Brainard & Guy's State 2, near c n½ ne ne 2-18s-27e, abnd 530 ft.

W. D. Cunningham et al (was Otis Roberts') State-Guinn 1, nw sw nw 30-17s-28e, pump 70 bbls, acid 500 gals 513-17 ft, td 541 ft.

Wm. P. Dooley et al's State-Ramapo 1, nwc se 36-17s-27e, pump 62 bbls, plus 20% water, acid 500 gals 547-70 ft, td 591 ft.

P. B. English et al's Daugherty 3-A, near c se sw 3-17s-27e, abnd 895 ft.

Red Lake Oil Co.'s Reid 2-A, se ne ne 20-17s-28e, pump 12 bbls, shot 60 qts 1911-45 ft, td 1980 ft.

Whiting & Grant's Howell 1, c sw nw 32-20s-25e, abnd 916 ft.

Williams & Ployhar's Barrientos 2, ne nw sw 35-17s-27e, abnd 459 ft.

R. I. Willson et al's Saunders 1-A, nwc 13-17s-27e, abnd 481 ft.

Lea County: Eunice—Drlg. & Explo., Inc.'s State-Shell 1-H, ne sw sw 13-21s-35e, elev 3589 ft, salt 1800-3360 ft, Yates 3550 ft, white lime 3670 ft, abnd 4006 ft.

Lea County: Maljamar—Barney Cockburn et al's Pearsall 5-B, c ne ne 34-17s-32e, pump 75 bbls, shot 4284-4316 ft.

Johnny Cockburn et al's Miller 5-A, c se se 23-17s-32e, flow 54 bbls 2-in, shot 360 qts 4036-4266 ft, td 4295 ft.

Maljamar O&G Corp.'s Mitchell 8-A, c sw nw 20-17s-32e, flow 38 bbls 1-in natural, 3960-90 ft.

WILDCAT STARTS

Eddy County—Archer & Jones' State 1, c se sw 7-16s-31e, sp.

Lea County — Culbertson & Irwin, Inc.-Southern California Pet. Corp.'s Shepherd 1, 660 ft from e and 3300 ft from s lines (odd) 1-21s-32e, lcn.

Hearing on Cycling Operations in Texas

A hearing on cycling plants in Texas has been scheduled by the Texas Railroad Commission for April 9 at Austin. The commission also will consider whether or not additional meters should be installed to measure gas taken into natural gasoline plants and residue gas leaving recycling plants.

The commission plans to go into several details, seeking to determine also whether or not it is possible for recycling plants to make accurate reports to the commission and whether or not the commission can make accurate checks of the operations of such plants with the equipment that is now installed and available in such plants.

Evidence also will be received as to whether or not additional rules should be promulgated to prevent waste of natural gas in the operation of these plants.

Other hearings scheduled are as follows:

April 8—Amendment of gas-oil ratio rules at Flour Bluff, Nueces County.

April 10—Midway, San Patricio County, new field allowable. Angleton field, Brazoria County, application to produce additional gas. Seeligson field, Jim Wells County, to determine if it will be necessary to provide separate lease storage tanks for each productive zone.

West Texas

Sand Hills Well Rated 14,457 Barrels Daily

Two Ellenburger areas in Pecos County to be united, and outposts for Abell and Conry-Davis fields are failures. Big well in Sand Hills field.

Pecos County: Humble's Gregg 1, ½ mile southwest of production in Apco pool and on a strike towards the Crockett-Boren sector, flowed heads oil from 4666-4711 ft in Ellenburger, topped 4652 ft, 100 ft low to nearest producer, and was awaiting acid treatment. Magnolia's Loar-State 1, mile southeast of Abell field, tested water at 6282-6306 ft in Ellenburger, topped at 6282 ft, and was coring at 6380 ft. Stanolind's Wagner 1-C, Lot 4, H&GN 31, ¾ mile north of Permian production in Conry-Davis pool, tested water in Ellenburger dolomite 5020-77 ft, and abandoned. Anderson-Prichard Oil Corp.'s Ogilvie 1, wildcat 6 miles southwest of Apco field, failed to make producer from promising show in Yates at 1130-80 ft, and drilling 1710 ft on Ordovician contract.

Big Well: Gulf et al's Tubb 4-B, offsetting production in south extension of Sand Hills field, Crane County, attained new potential record for field being rated at 14,457 bbls 39.5-gr oil, gas-oil ratio 2272/1, based upon last 4 hours of 6-hour open-flow gauge. Production from dolomite 5650-65 ft in Ellenburger, topped at 5626 ft, elevation 2471 ft. Well flowed 127 bbls natural one hour before using 5000 gals acid. Company's Waddell et al 39, 2 locations south, structurally low, cemented 5½-in 5664 ft, total depth 5701 ft.

Lubbock Failures: Stanolind's Stennett 1, 6 miles southeast of Lubbock County's single pumper, drilling below projected Clear Fork pay at 5160 ft. Drill-stem test at 4681-4755 ft proved dry, and second test at 4755-5037 ft yielded 750 ft salt water.

Deep Prospects: Plymouth Oil Co.'s Alford 1, eastern Upton County, fishing drill pipe in Devonian chert at 10,291 ft, having sidetracked junk at 10,014,-10,194 ft. In northeastern Ward County, Shell's Sealy-Smith 1, drilling dry lime 9795 ft. Phillips Pet. Co.'s University-Andrews 1-A, second Ordovician project for Embar structure, Andrews County, drilling lime 6305 ft in Lower Permian.

COMPLETIONS

Andrews County: North Cowden — Texas Co.'s Holt 23, c ne nw T&P 10, blk 43, 1-N, pump 300 bbls, plus 5% water, shot 380 qts 4555-4750 ft.

Cochran County: Slaughter—Devonian Oil Co.'s Woodley 4, 440 ft from n and 1414 ft from w lse, leag 57, Oldham CSL, flow 477 bbls cas, acid 12,500 gal 4918-61 ft.

Honolulu's Igoe-Smith 31-14, swc lab 14, leag 56, Oldham CSL, flow 758 bbls cas, acid 10,500 gal 5007-44 ft.

Honolulu's Igoe-Smith 34-3, swc lab 3, leag 56, Oldham CSL, flow 1424 bbls cas, acid 10,000 gal 4930-5023 ft.

Geo. P. Livermore, Inc.'s Boyd-Texaco 20, 1751 ft from n and 440 fe from e lse, leag 53, Oldham CSL, pump 301 bbls, acid 10,000 gals 5007-79 ft.

Magnolia's Dean 2-A, 660 ft from s and 1980 ft from e leag 58, Martin CSL, flow 460 bbls cas, acid 10,500 gal 4923-70 ft.

Magnolia's Woodley 28, nwc lab 8, leag 56, Oldham CSL, flow 586 bbls cas, acid, 10,500 gals, td 4975 ft.

Crane County: Sand Hills—Gulf et al's Tubb 4-B, c ne sw PSL 28, blk B-27, flow 15,457 bbls open, acid 5000 gals, Ellenburger 5626-65 ft.

Crane County: Gulf-McElroy — Gulf's McElroy 269, se nw sec 205, blk F, pump 339 bbls, shot 780 qts 2790-3088 ft, td 3178 ft.

Crockett County: Wildcat—J. B. Moncrief and Helmerich-Payne's Couch-Texaco 1, c nw se GC&SF 30, blk QR, elev 2519 ft,

Paluxy 540 ft, base Cretaceous 740 ft, top lime 820 ft, San Angelo-Clear Fork contact 1980 ft, abnd 6523 ft.

Crockett County: Clara Couch—Humble's Owens 1-C, c ne se GC&SF 17, blk GG, abnd 2605 ft.

Ector County: Foster—E. J. Kubat et al's Johnson-Texaco 4, nw sw ne T&P 46, blk 43, T-1-S, pump 210 bbls, shot 325 qts 4007-4147 ft.

Sinclair Prairie's Palmer 8, sw se sw T&P 45, blk 42, T-1-S, pump 521 bbls, acid 5000 gals 4280-4340 ft, pb to 4331 ft.

Ector County: Goldsmith — Gulf's Goldsmith 385, nwc ne T&P 28, blk 44, T-1-S, flow 2277 bbls open, acid 4000 gals, td 4218 ft.

Hockley County: Slaughter — Magnolia's Mallet 12-B, sec lab 7, leag 50, Scurry CSL, flow 1294 bbls cas, acid 10,500 gal 4995-5040 ft.

Magnolia's Mallet 20-F, nwc lab 13, leag 49, Scurry CSL, flow 1607 bbls cas, acid 10,500 gals, td 5032 ft.

Texas Co.'s Baker 3, swc lab 88, leag 38, Zavalla CSL, flow 1063 bbls cas, acid 12,000 gals 4995-5035 ft.

Texas Co.'s Slaughter 116, swc lab 72, leag 38, Zavalla CSL, flow 1662 bbls cas, acid 12,000 gals 4922-5030 ft.

Texas Co.'s Slaughter 122, sec lab 75, leag 38 Zavalla CSL, flow 980 bbls cas, acid 5000 gals 4970-5033 ft.

Texas Co.'s Slaughter 126, nwc lab 85, leag 38, Zavalla CSL, flow 2009 bbls cas, acid 14,000 gals 4955-5040 ft.

Western States Gasoline Corp.'s Mallett 10-B, swc lab 20, leag 50, Scurry CSL, flow 1474 bbls cas, acid 10,000 gals 4940-5040 ft.

Howard County—Fleming Oil Co. et al's Denman 3-D, se ne ne T&P 16, blk 30, pump 162 bbls, shot 710 qts 2645-2944 ft, td 2953 ft.

Lubbock County: Wildcat—John R. Sharp et al's Holman 1, c ne nw sec 12, blk B, J. H. Gibson sur, elev 3203 ft, anhydrite 1610 ft, salt 1700 ft, Yates 1980 ft, San Andres 3190 ft, abnd 5505 ft.

Pecos County: Abell — Sinclair Prairie's Heierman 4, 1280 ft from n and 330 ft from e lines H&TC 12, blk 3, Simpson 4810 ft, Tulip 5160 ft, McKee 5449 ft, abnd 5992 ft.

Pecos County: Conry-Davis — Stanolind's Wagner 1-C, c lot 4, H&GN 31, blk 9, elev 2371 ft, Ellenburger 5020 ft, abnd 5077 ft.

Pecos County: Walker—Cardinal Oil Co.'s White-Baker 4-J, sw nw sw GC&SF 84, blk 194, flow 96 bbls 1-in, shot 100 qts 2125-50 ft.

Pecos County: Wildcat—T. E. Jamison-Chas. Pollard-Francis' University 1, c ne sw sec 34, blk 27, elev 3087 ft, Yates 2795 ft, abnd 2967 ft.

Stonewall County: Aspermont—Shell's Rutherford 2, swc ne H&TC 144, blk 1, elev 1787 ft, new pay, Mississippi 5970-6108 ft, Ellenburger 6168 ft, pump 54 bbls, 40-gr, plus 32 bbls water, acid Strawn perf 5135-55 ft, td 6345 ft.

Ward County: Wildcats—Darby Pet. Corp.'s University 1, c se sw sec 19, blk 16, new pool, elev 2617 ft, anhydrite 1640 ft, brown lime 2498 ft, Yates 2595 ft, reef lime 2785 ft, flow 897 bbls, 20.8-gr natural 2-in, gas/oil 61/1, dolomite 2827-47 ft.

Stanolind's Byrd 1, c e¼ of n¼ H&TC 34, blk 34, new pool, elev 2594 ft, anhydrite 1502 ft, Yates sand 2570 ft, flow 29 bbls 30-gr, ¼-in, gas/oil ratio 287/1, shot 105 qts 2637-79 ft, td 2880 ft, pb 2679 ft.

Winkler County: Keystone—Sid Richardson & Perry Bass' Jenkins-Conoco 8, nec sw PSL 13, blk 77, flow 585 bbls 1-in, shot 375 qts 3308-3427 ft, td 3460 ft.

Richardson & Bass' Keystone-Jenkins 4, swc ne PSL 13, blk 77, flow 441 bbls, 1-in, shot 280 qts 3330-3420 ft, td 3440 ft.

Standard of Texas' Baird 32-12, 932 ft from n and 1665 ft from w lines PSL 12, blk B-3, flow 270 bbls cas, shot 320 qts, 3260-3385 ft, td 3390 ft.

Winkler County: Scarborough—Richardson Oils' Scarborough 5-E, sw se nw PSL 18, blk 74, flow 102 bbls 1-in, shot 450 qts 2861-3001 ft, td 3011 ft.

Yoakum County: Wasson—American Liberty & Atlantic's Futch-Texaco 8, c sw nw sec 796, flow 272 bbls, plus 5.2% water, 2-in, acid 10,000 gals 4998-5233 ft.

Humble's Stanford 3, c se ne sec 836, flow 431 bbls ½-in, acid 10,000 gals perf 4988-5168 ft, td 5193 ft.

Trinity Drlg. Co.'s Bennett-Humble 1, swc sec 699, flow 707 bbls ¼-in, acid 12,000 gals 5200-50 ft.

TEXAS PANHANDLE
COMPLETIONS

Gray County—Magnolia's Fee (Tr. 227) 49, I&GN 14, blk 3, pump 165 bbls, shot 360 qts, 2879-2981 ft.

Smith Bros. Ref. Co.'s Shaw 1, ACH&B 28, blk 1, elev 2909 ft, abnd 3550 ft.

Hutchinson County—M. B. Armer & W. H. Ingerton Jr.'s Luginbyhle 3, TW&NG 4, blk J, pump 83 bbls, td 3170 ft.

Hollandsworth Drlg. Co.'s Groves 6, TCRy 28, blk M-23, pump 83 bbls, td 3226 ft.

Phillips' Katherine 3, W. Cole sur, elev 3257 ft, abnd 3365 ft.

Wheeler County—Smith Bros. Ref. Co.'s Johnson 21, H&GN 34, blk 24, pump 30 bbls, td 2538 ft.

OLD WELL DEEPENED

Ward County—T. P. Coal & Oil Co.'s James 29, H&TC 5, blk 34, otd 2418 ft, pump 24 bbls, td 2675 ft.

WILDCAT START

Upton County—Porter Rankin et al's Good 1, c sw sw HE&WT sec 27, Cert 984, lcn.

North Texas

Ellenburger Strike Moves Clay Deep Area East

Clay County deep area expanded east with first Ellenburger producer. Confirmation test for Potts pool fails in Mississippian. No appreciable change in status of deep prospects in Montague County.

Clay County: Bridwell Oil Co.'s Myers 3, C. Thompson Survey, ½-mile northeast of Bend producer in Nebtex pool, cored oil saturation in Mississippian and Ellenburger at 6024-67 ft, and formation tester used at this level yielded 1500 ft oil and 200 ft oil-cut mud, 7-in cemented to complete. Myers 3 proved dry in Bend, topped at 5506 ft, 29 ft low, and entered Mississippian at 6019 ft, 31 ft low, with first Ellenburger 6051 ft, 22 ft low. Continental's Spring 2, ¼-mile northeast of its Spring pool discovery, drilled plugs and making velocity tests before unloading for completion in saturation at 5595-5600 ft in Bend topped at 5578 ft, 18 ft low.

Wichita County: Consolidated Oil Co.'s Potts 2-D, southeast offset to its

JUST A GLANCE TELLS THE PRESSURE!

Drillers really like the billboard figures of the Abercrombie Pressure Gauge. These figures, on a clear, steady dial behind a colorless, unbreakable plexiglass face, tell the whole story at a glance of the pressure being recorded on this sure, accurate gauge. The gauge is not affected by external vibrations, and pump pulsations are dampened over the entire pressure range without adjustments.

ABERCROMBIE PUMP CO. • GULF BLDG. • HOUSTON, TEXAS

The Conquering Kilowatts . . .

By Lowell Thomas

HOW much power can America produce?

It took a little digging on my part to discover that right now, our power capacity exceeds that of Italy, Germany and Japan combined. Today we have fifty-five million kilowatts. Within another year American capacity will be at least sixty million kilowatts . . . sixty-four million by 1944.

Simple Terms

Those are big figures, but what do they mean, brought down to simple, visual terms? Well, one kilowatt is the same as one and one-third horsepower. That means a single kilowatt has the working strength —the actual physical energy—of 14 strong men. On an efficient treadmill they would be able to lift 500 pounds one mile straight up in the air in an hour.

Now multiply those 14 husky men (equal to one kilowatt) by the more than 100 billion kilowatt hours that were sold by power companies last year and you would have power equivalent to more than ***seven hundred million men***, working forty hours a week, fifty weeks a year!

Just look what that means! Seven hundred million of these mechanical workmen are enough to provide the equivalent of more than twenty workmen for every family in America . . . And you and the munitions factories can get those mechanical men to work at the snap of a ***switch!*** You have here, it seems to me, a beautiful example in strictly human, flesh-and-blood terms of what American power engineers have been able to do to reduce back-breaking toil — to make life more worth while for all of us — and to speed national defense production in our present emergency.

Power Enough Exists

The facts support our power company executives when they say we will have enough power to meet any immediately foreseeable demand.

"Okay," says the Man in the Street, "we've got enough kilowatts — millions more than Hitler has. But how do they compare to the requirements of defense plants, and can they keep our houses and stores lighted and run our non-defense factories at the same time?"

That was what I asked Colonel H. S. Bennion, Vice-President and Managing Director of the Edison Electric Institute, which is, among innumerable other activities, the central information bureau of the Power Industry.

"Speaking in general," said the Colonel, "there are plenty of kilowatts for every purpose at the present time, despite the heavy defense loads we have taken on.

"You see, the electric industry maintains in normal times a reserve generating capacity averaging about 35% over normal requirements. This is a reservoir of power that can be tapped to meet extraordinary needs.

"And there is still another reserve that can be utilized," Colonel Bennion continued. "The 'peak load' is sustained for only about four hours a day. The other twenty hours we operate at only about 45% capacity. Merely by re-adjusting working hours in a certain percentage of factories, we could thus add another ten per cent to the juice available without switching in a reserve generator or using any of our reserve fuel."

"Have most of the additions in our power capacity been in Federal plants like T.V.A., Bonneville and Grand Coulee?" I queried.

"No. Those are big plants and they're doing a swell job," the Colonel replied, "but it's our electric companies, operated under efficient American business management, who are responsible for carrying out the major part of our preparedness program. All the Federal Government power plants together supply only a little more than 7% of the nation's power — municipal plants perhaps another 5%. The great majority of power is generated by privately owned and financed companies. Perhaps I should say publicly owned and financed, because their stockholders are numbered in millions."

That is the broad, general statistical background of Power in Defense. Adequate power now and expanding capacity for future needs.

Expansion — 300%

Whether I talked with holding company heads or operating company executives, I got the same quietly confident story. I found reason for their confidence in the history of the power industry, which, in the characteristic American way, has expanded 300% in twenty years while the population has increased by but 25%.

Throughout the industry I sensed that a spirit of genuine, cheerful and competent co-operation with the government's all-out defense effort was universal.

In America all our defense demand, up to now, has been super-imposed upon the normal, non-defense requirements of light and power. Utility men say that defense production can be greatly increased and still be handled without cutting the householder's lights or power for luxury items. But they foresee — and business indices already indicate — that defense production is bound to cut into non-defense work, which will lessen the civilian and commercial demand for current. This means that the strain on power resources will be in that degree lessened. "Either way," said a power engineer, "the conquering kilowatts will march on."

Here is an industry that was really ready for national defense. Electric power is now driving 86% of the factory wheels of America. And almost nine-tenths of this vast power mechanism was built and operated by private enterprise, seeking an opportunity for profit, in the matchless American Way. In that search were developed new uses and new markets for power, new comforts and standards of living for Americans, at ever higher efficiency and with ever lower cost. Backed by the savings of millions of small investors, private industry has marshalled the peacetime kilowatt forces into an army more than adequate to America's production needs in a war-time emergency.

If the outcome of our battle for Democracy depends on power (and many believe it does) the kilowatts are already becoming Conquering Kilowatts in the service of Uncle Sam. And, as far as I can see into the future, they will ***continue*** their forward march until that final day when the Conquering Kilowatts of Democracy will light the blazing splendor of our Victory Parade.

THE FOREGOING is a condensed version of an article by Lowell Thomas which appeared in the Saturday Evening Post of January 24 as one of a series of advertisements sponsored by the JOHNS-MANVILLE Company, designed to tell the American people how indispensable our basic American Industries are to our war effort. Although not mentioned specifically in Mr. Thomas' article, Utility Electric Power and its utilization by the Petroleum Industry is of extreme importance at the present time. We are proud to be able to supply Electric Power to the Petroleum Industry, which has faithfully provided Uncle Sam with adequate supplies of petroleum products so vital for victory.

PETROLEUM ELECTRIC POWER ASSOCIATION

Potts pool discovery on east edge Wilbarger County, tested water in Ellenburger at 4589 ft, and will be plugged back to try Bend, topped at 4105 ft, 10 ft low. Ellenburger was entered at 4581 ft, 46 ft low. The discovery made initial of 1247 bbl natural through ¾-in from Mississippian and Ellenburger saturation at 4532-39 ft, and three offsets were made immediately.

Jack County: Taubert-McKee and Sinclair Prairie's Boyd 1, 3 miles south of Post Oak, logged dry Mississippian lime 6048-6108 ft, and drilling shale 6260 ft. Wilcox Oil & Gas Co.'s Bloodworth 1, 6 miles east of Antelope, testing after nitro shot in Strawn at 3810-50 ft, having plugged back from Ellenburger 6070-6218 ft.

Montague County: Sinclair Prairie's Collier 1, 6 miles east of Montague, entered Viola lime 7415 ft and was coring at 7430 ft, and Jones 1, 1¼ miles northeast Forestburg, was drilling shale 8005 ft. Series of formation tests failed to offer encouragement for production from either prospect. The company's Henderson 1, 2 miles east by north of Denver, was drilling shale 6250 ft, having passed up shows in Bend that warrant running pipe for test. Continental's Penn 1, east offset Gant-Turner pool discovery, was averaging 50 bbls oil daily on swabbing tests in Bend saturation at 6270-93 ft, and will be acidized. Company's Yowell 1, mile north by west of its Stoneburg pool discovery, excluded nominal saturation in Bend in setting pipe at 6384 ft, 2 ft above Viola, and making swabbing test at 6426 ft, and Drummond 1, same area, drilling plugs from 7-in at 6215 ft, bottomed in conglomerate saturation at 6216 ft. Stanolind's Germany 1, east offset to Chapman-McFarlin pool discovery, dry in 4800-ft Strawn pay, and drilling shale 5330 ft.

COMPLETIONS

Archer County: Wildcat—Continental's Ferguson 1, 1400 ft from e and 467 ft from n lines s½ SPRy sec 9, A-417, KMA lime 4038 ft, Bend 4468 ft, Ellenburger 4894 ft, abnd 5270 ft.

Cooke County: Wildcats — Kingery Bros. Drlg. Co.'s Ivans 1, 330 ft out nwc of south 120-ac, D. D. Baker sur A-118, abnd 2091 ft.

Panhandle Ref. Co.'s Trew 1, 660 ft out of sec of Z. H. Whitesides sur A-1083, top Ellenburger 2469 ft, abnd 2486 ft.

Saulsbury Oil Co.'s Rowland 1, 330 ft s and 547 ft w of nwc L. B. Tadlock sur but in L. C. Gibbs sur A-430, abnd 3006 ft.

Cooke County—O. W. Witherspoon et al's Trew 1, B. H. Miller sur A-668, abnd 860 ft.

Jack County: Wildcat—O. J. Perren et al's Brumbelow 1, H. C. Ayers sur A-4, elev 959 ft, Bend 4720 ft, Marble Falls 5390 ft, Mississippi 5845 ft, Ellenburger 5850 ft, abnd 6020 ft.

Jack County: Hoefle — Taubert-McKee & Sinclair Prairie's M. Hoefle 1-A, J. W. Barrett sur, pump 128 bbls oil and 27 bbls water, acid 6000 gals, Bend, 4931-81 ft.

Jack County—Graham Royalty Co.'s Loving 5, TE&L 2741, abnd 3302 ft.

Montague County: Benton—Lesh & McCall's Reed 1, 750 ft out sec N. J. Skeen sur A-717, Ranger 1806 ft, Bend 5135 ft, abnd in Ellenburger 5250 ft.

Wichita County: Wildcat—C. F. Schram et al's Laukhuf 1, 2159 ft from n and 803 ft from e lines J. R. McDowell sur A-194, abnd 1420 ft.

Wilbarger County—Phillips-Pan Oil Co.'s Servatius 4, nw se se H&TC 78, blk 14, pump 288 bbls, shot 40 qts 2874-80 ft, top Ellenburger 4578 ft, td 4668 ft, pb to 2886 ft.

OLD WELL DEEPENED

Wilbarger County: Consolidated — Consolidated et al's Ancell 1-K-E, ne sw nw H&TC 2, blk 7, otd 3780 ft, top Bend 3988 ft, Ellenburger 4356 ft, pump 40 bbls oil and 80 bbls water, acid 4000 gals, td 4419 ft, pb to 4025 ft.

WILDCAT STARTS

Archer County—Bridwell Oil Co.'s Conrady 1, 990 ft out of nwc lot 23, blk 4, Clark-Plumb sur, 2¼ mi w of Windthorst, lcn.

Craig & Wilson's Ikard 1, 330 ft out sec W. L. Porter sur A-1074, 3½ mi se Archer City, lcn.

Craig & Wilson's J. Seay 1, 330 ft out nwc blk 109, J. W. Harris subdiv, 4½ mi w Archer City, lcn.

W. E. Production Co.'s A. M. Anderson 1, 660 ft out nec blk 8, G. P. Meade subdiv, 2 mi ne Megargel, lcn.

Cooke County—S. H. Fagadau et al's Mrs. C. E. Johnson 1, 1296 ft from w and 467 ft from n lines of ne 120-ac of S. P. Ry sur A-983, 2 mi n of Leo, lcn.

Young County—W. F. Collins et al's Hawkins 1-A, 1635 ft from e and 900 ft from n lines TE&L 1917, 3 mi e by s of Jean, lcn.

W. R. Worthington et al's M. Killian 1, 750 ft from n and 550 ft from e lines TE&L sec 211, 2¾ mi s of Olney, lcn.

WEST CENTRAL TEXAS

COMPLETIONS

Jones County: Wildcat—Fain-McGaha Oil Corp.'s Cooper 1, se sw se T&P 29, blk 15, elev 1697 ft, dry Saddle Creek 1928-54 ft, abnd 2400 ft.

Jones County — Hendrickson & Milner's Huddleston 1, nw part lot 34, T&P 2, blk 20, abnd 2504 ft.

Taylor County: Merkel—Fain-McGaha Oil Corp.'s Perry 2, nec tract, blk 5, Grimes CSL sur, abnd by OPC order, td 2611 ft in pay.

WILDCAT STARTS

Brown County—John F. Lane et al's Lane-Riordan 1, 450 ft from w and 150 ft from n lines C. B. Jennings sur 353, lcn.

Coleman County—W. M. Holland and Gladys Huffman's Bailey 1, se ne sw HT&B 17, sp.

Jones County—Fain-McGaha Oil Corp.'s W. E. Wafer 1, e ne se T&P 39, blk 15, lcn. H. W. Lee et al's A. D. Roberts 1, 330 ft from e and 1100 ft from n T&P 2, blk 16, lcn.

Taylor County—Clark-Cowden Drilling Corp. et al's Danse 1, 660 ft out NEc of north 285 ac of south 750 ac of w 1/3 Jose Gabo sur 128, lcn.

East Texas

Anderson County Test Has Promise in Woodbine

Concord prospect in northeastern Anderson County has promise of Woodbine oil strike with abnormal structural relief. Henderson County deep test yields water in Woodbine. Exploration of Smackover lime zone in the fault re-

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gion extended to northwestern Limestone County.

Anderson County: Magnolia's Campbell 1, southwest corner of 90-acre tract, Jess B. McNealy league and 3½ miles northeast of Montalba, was awaiting drill-stem after coring through oil-saturated sand in Woodbine, topped at 4522 ft, to water at 4669 ft and plugging back to 4540 ft. Electric log indicated possible oil pays at 4522-30 ft; 4533 ft; and 4544-51 ft. Austin chalk was logged at 4319-60 ft; while Tide Water-Seaboard's Valentine 1, failure situated three miles southeast, had 256-foot section of chalk, based at 4981 ft, being 767 ft low. Campbell 1 is 783 ft high on the Woodbine when correlated with this 5282-foot failure. Magnolia added 3000 acres to its original block of 5200 acres when its initial test registered unusual structural relief, which is attributed to a deep-seated salt dome.

Henderson County: Texas Co.'s Brown 1, Trinity test, encountered water in Woodbine, topped at 4535 ft, elevation 435 ft, and was drilling at 5130 ft.

Hopkins County: Rancho Oil Co.'s Stribling 1, northwest corner of 81.6-acre tract, Thomas Norris Survey, is a new Woodbine prospect on the Talco-Mexia fault trend.

Sub-Trinity Project: The Texas Co. has awarded contract for the drilling of Keeling-Scott 1, Southwest part of A. Whittaker Survey A-568, Limestone County, and 5 miles southwest of Cooledge. This proposed Smackover lime test is in east central portion of an 80,000-acre lease block taken by the company in a general northeast-southwest direction across the northwest portion of Limestone County and west of the Mexia-Talco fault zone. Considerable acreage has been taken by others to the northeast across Navarro, Ellis and Kaufman counties to connect with the Smackover lime play that recently swept west and southwest from the deep strike in Arkansas.

COMPLETIONS

Smith County: Wildcat—Herbert M. Ogg et al's McClung 1, 201-ac tr, Nancy Sumpter sur, elev 426 ft, abnd 5705 ft.

Smith County: Chapel Hill—Big West Drl. Co.-C. R. Starnes' Jackson 1, 467 ft out nwc 45½-ac tr, L. H. Dillard sur, flow 480 bbls ⅜-in, 43-gr, acid 4000 gals Petit, perf 8238-8320 ft, td 8362 ft.

Wood County: Hawkins—Humble's C. A. Peacock 1-B, 467 ft out sec 41.34-ac lse, Jas. Pollock sur, flow 430 bbls, ¼-in, Woodbine 4762-67 and 4854-64 ft, td 4900 ft. Magnolia's Jarvis College 2, 467 ft from n and 1558 ft from w lines lse, S. Castleberry sur, flow 296 bbls 22-gr, ¼-in, Woodbine 4738-56 ft, td 4758 ft.

OLD WELL DEEPENED

Lamar County: Wildcat—C. W. Whitehead & Dahl Bros.' Barr 1, 778 ft from n and 1452 ft from e lines 150-ac lse, I. P. Langford sur, otd 1525 ft, Georgetown lime 2130 ft, Paluxy 2700 ft, abnd 3308 ft.

WILDCAT STARTS

Henderson County—Bobby Manziel et al's Levine 1, 2000 ft out of nec of 700-ac tr, M. M. Sanchez sur, 3 mi nw Malakoff, rur.

Limestone County—Texas Co.'s Scott 1, 1980 ft out of swc of A. Whittaker sur A-568, 5 mi sw Cooledge, lcn for sub-Trinity test.

Southwest Texas

Wilcox Exploration Work Increased to 18 Operations

Wilcox exploration in Southwest Texas has reached a peak with 18 operations to or through that formation being active or in the location stage for immediate drilling. The result of these wildcats will have an important bearing on the future development of this trend.

DeWitt County: Adams O. & G. Co.'s Berch 1, 3 mi east of Yorktown, perf 7192-7204 ft in Wilcox, flowing 75 bbls 63-gr condensate, ¼-in ch, 2800 lbs wp, gas/oil ratio 26,000/1.

Hidalgo County: McCollum Oil Co.'s Sweeney 1, continuing to make tests of 60.4-gr condensate from 6035-38 ft in Frio.

Jim Wells County: Humble's King-Arroyo 2, 4667 ft w Stratton field, drill stem test 7133-40 ft rocevered 3000 ft of oil and little mud, 430 lbs pressure through ¼- and ⅜-in chokes in 20 min; coring ahead.

LaSalle County: Quintana Pet. Co.'s South Texas Synd. 9, 2292 ft nw nearest well Washburn field, abnd below 5800 ft; No. 10, 1320 ft southwest of field cored gas in 5100-ft zone, drilled to 5550 ft, cored 18 ft sand at regular level and will attempt dual completion.

Live Oak County: Yegua Oil Co.'s Watson & Ship 1, ne old Ft. Merrill field, perf in Yegua below 4600 ft, swabbing.

Nueces County: Seaboard Oil Corp.'s Lehman 1-C, sec 25, 1½ mi sw London field, testing 5548 ft.

Jackson County: Magnolia's Gordin 15, North LaWard, flowed 55 bbls oil, 9/64-in, 2100 lbs tp, 2120 lbs cp, perf 5617-28 ft. Opens Frio sand 400 ft deeper than regular Marginulina pay.

LOWER GULF COAST

COMPLETIONS

Jackson County: Lolita—Magnolia's Hamilton 1, lot 32, abnd 6480 ft.

Jim Wells County: Ben Bolt—Bridwell Oil Co.'s Elizondo 3, La Trinidad Gr, abnd 4878 ft, H. H. Howell's Jamora 1, blk 9, 282 bbls 43-gr, 3/16-in ch, 675 lbs tp, 1410 lbs cp, gas/oil ratio 734/1, perf 5230-42 ft, sand 5219 ft, td 5357 ft.

Jim Wells County: Seeligson—Shell's Seeligson 2, Millican sur, 129 bbls 41-gr, 7/64-in ch, 1175 lbs tp, 1225 lbs cp, gas/oil ratio 800/1, sand 5930 ft, 5½-in cas 5955 ft, td 6000 ft.

Jim Wells County: Stratton—Humble's King-Arroyo 1, ¾ mi west, abnd 7202 ft.

Nueces County: Agua Dulce—Pan American's Aetna 2, sec 306, 85 bbls 44.3-gr 9/64-in ch, 750 bbls tp, cas sealed, gas/oil ratio 326/1, perf 6412-28 ft, sand 6412 ft, td 6437 ft. Richardson Pet Corp's Union Central 1, sec 304, abnd 7063 ft.

Refugio County: Greta—Monday Oil Co.'s Heard 3, J. H. Peoples sur, 88.39 bbls 23.3 gr, ⅛-in ch, 275 lbs tp, 450 lbs cp, gas/oil ratio 190/1, sand 4378 ft, 4½-in cas 4437 ft, td 4445 ft.

Refugio County: Refugio—Hewit & Dougherty's G. Strauch 1, lot 7, blk 1, abnd 6515 ft.

San Patricio County: Midway—F. M. Boynkin's Reed 1, sec J, w outpost, 225 bbls 36.6-gr, 5/32-in ch, 900 lbs tp, 1100 lbs cp, gas/oil ratio 850/1, perf 6097-99 ft, sand 6092 ft, td 6555 ft; Midway-Victory Oil Co.'s M. A. Floerke 3-C, sec L, abnd 6510 ft.

San Patricio County: Odem—Seaboard's C. C. Parker 4-A, blk 3-A, 121 bbls 33.1 gr, ⅛-in ch, 775 lbs tp, 750 cp, gas/oil ratio 355/1, perf 5327-31 ft, sand 5325 ft, td 5332 ft.

WILDCAT START

Willacy County—Baldridge & King's Berndt 1, lot 61, Engelman sub No. 1, 6 mi se Raymondville, 8000 ft test.

SOUTHWEST TEXAS

COMPLETIONS

Duval County: Government Wells—Sun's Weiderkehr 1-A, ne se Sec 53, 74 bbls 22.3-gr, pump, 5½-in cas 1775 ft, sand 1776 ft, pb 1820 ft, td 2913 ft.

Duval County: Hoffman—Magnolia's Weil 28, sec 113, 133.74 bbls 21.1-gr, ¼-in ch, 25 lbs tp, 180 lbs cp, gas/oil ratio 400/1, sand 2632 ft, 7-in cas 2632 ft, td 2637 ft.

Jim Hogg County: Colorado—Humble's King-Colorado 61-B, Las Moretas gr, 186.13 bbls 46.4-gr, 3/16-in ch, 300 lbs tp, 400 lbs cp, gas/oil ratio 180/1, pay 2916 ft, 4½-in cas 2903 ft, td 2927 ft.

Jim Hogg County: Wildcat—M. L. Massingill's R. Hinnant 1, lot 24, sh 1, Las Animas gr, 1 mi se Glenfield, abnd 3340 ft.

McMullen County: S. Campana—Argo's Edrington 6-I, 170.4 bbls 23 gr, 1⅜-in nipple, 25 lbs tp, 200 lbs cp, gas/oil ratio 396/1, sand 3044 ft, 7-in cas 3054 ft, td 3059 ft.

Starr County: Garcia—Sun's Frost 1-B, Por

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A symposium conducted by the Research Committee of The American Association of Petroleum Geologists, A. I. Levorsen, chairman. Papers read at the Twenty-sixth Annual Meeting of the Association, at Houston, Texas, April 1, 1941, and reprinted from the Association Bulletin, August, 1941.

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Edited by A. I. LEVORSEN

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The purpose of this symposium is to get an over-all picture of the undiscovered oil resources of North America, north of the Rio Grande. Ten geological organizations have participated, to the end that this survey has behind it the authority of many geologists representing state and national geological surveys, large and small oil companies, and consulting and independent geologists. A map and a section of geology, stratigraphy, and structure illustrate each province description.

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Starr County: Yturria—Sun's Yturria 2-A, Por 100, 158.5 bbls 44.3-gr, 5/32-in ch, 450 lbs tp, 750 lbs cp, gas/oil ratio 310/1, perf 4219-20 ft, sand 4219 ft, td 4222 ft.

Starr County: Sun—Sun's Margo 3, Los Retachez gr, 106 bbls, 9/64-in ch, 620 lbs tp, 1000 lbs cp, 5% sw, gas/oil ratio 210/1, perf 4679-84 ft, sand 4670 ft, td 4679 ft.

Starr County: Wildcats—Sun's Saenz 1, sec 194, 2¼ mi w Sun fld, abnd junk in hole 7211 ft. L. H. Wentz's S. Gonzales 2, tr 2-C, Por 105, 11 mi w Rio Grande City, abnd 1313 ft.

Webb County: Adami—Colmena Oil Co.'s Adami 1, sur 345, abnd 1140 ft.

Webb County: Wildcat—Anderson & Stieren's P de la Garza 1, se sw sec 262, 2 mi n Carolina-Texas, abnd 2450 ft. Killam & Midstates (Puig 2, blk 111), Albercas gr, 2 mi s McLean, abnd 3526 ft. Regent's LaMesa L & C Co. 1, sec 5, 22 mi nw Laredo, Navarro 4475 ft, abnd 6782 ft.

WILDCAT STARTS

Webb County—Achning, Daubert & Howeth's P. Leal 1, 660 ft n and e lines sec 667, 8½ mi n Bruni, 3200-ft tet. Cummings & Hilland's Roman 1, 660 ft n and e lines 160 ac lse, sec 72, 1¾ mi w Bruni, 3500 ft test.

SOUTH CENTRAL TEXAS

COMPLETIONS

Bastrop County: Wildcat—Marts & Beaven's McWilliams 1, G. J. Glasscock sur, 1½ mi e Elgin, abnd 2380 ft.

LaSalle County: Wildcat—Navarro's R. L. Talbert 1, se ne sec 149, 9 mi s Los Angeles, abnd 5750 ft.

Maverick County: Chittim — Wellington's Chittim 1, sec 129, junked 5711 ft in Glenrose.

Milam County: Wildcat—Fritz Fuch's O. Galbreath 1, J. J. Liendo gr, 3 mi ne Thorndale, abnd 1620 ft in Pecan Gap.

WILDCAT STARTS

Bastrop County—Marts & Beaven's Dannely 1, 900 ft sw, 1000 ft se lines 126-ac tr, G. J. Glasscock sur, 1½ mi e Elgin, 2500-ft test.

Lee County—W. O. Furlow & D. C. Thrash's Peebles 1, 1000 ft n & w lines 287-ac tr, J. F. Johnson sur, 9 mi e Lexington, 3500-ft test.

Milam County—Fritz Fuch's Hollman 1, 660 ft nw and sw lines 225-ac lse, J. J. Liendo gr, 4 mi ne Thorndale, 1700-ft test. H. F. Goff's Tate 1, 330 ft ne and nw lines se por of tr, J. J. Liendo gr, 2½ mi sw Thorndale, lcn.

Wilson County—Holland Oil Co.'s Boysen 1, 660 ft s & w lines of tr, A. Flores sur, 5½ mi ne Poth, lcn 5000-ft test.

Texas Gulf Coast

Second Well in Mercy Field Cores Oil Sand

Second well at Mercy, San Jacinto County, cores sand; Aldine wildcat opens new field; shows reported in Brazos County wildcat.

San Jacinto County: Shell Oil Co. has cored Wilcox oil sand in the second well in the recently discovered Mercy field. Being 1600 ft northwest of the discovery, operator's Dunnam 1 topped pay at 8273 ft, and a drill-stem test was run over the week end. Extensions in the field will be followed with interest since geophysical data shows the structure to be large in a northeast-southwest direction.

Harris County: George W. Strake has completed Phenix Dairy 1, wildcat in the Aldine area, north part of county, to establish a new field. On official gauge, the well flowed 36 bbls 48-gravity oil, no water, through 11/64-in choke from perforations at 7190-93 ft. Several tests on the well, all yielding oil, gas and water.

Atlantic Refining Co. is still cutting and pulling stuck drill pipe in Cohn 1, wildcat west of the Esperson dome. Pipe was stuck while a liner was being cemented for a test of a sand around 8800-ft. Several sand sections were logged which will be tested.

Brazos County: Phillips Petroleum Co. is reported to have found oil shows in top of Wilcox in Jericho 1, wildcat in the Millican dome area. Although official information is being withheld, the show was reported to have been picked up at 3475-3500 ft. The well is Phillips' third on the prospect, and the most southerly from the dome.

COMPLETIONS

Brazoria County: Chenango — Stanolind's Murchison 1, 2 mi sw Chenango, 467 ft fr s & e lines of 40-ac tr Shubael March sur, perf 9528-32 ft, showed oil, gas, and salt water, perf 10,010-020 ft, 5,600,000 gas and dist through ¼-in, extends gas production 2 mi sw, td 10,497 ft.

Fort Bend County: Wildcat—Tide Water's Armstrong 2, 660 ft fr ne l & 314 ft fr nw l James Scott Lge 3, abnd 6000 ft.

Fort Bend County: Clodine—Providence Oil Co.'s Miner 1, 467 ft fr most n'ly n l & 467 fr e'ly w l lse, John Brack sur, perf 7502-05 ft, flow 149 bbls ¼-in, tp 2150, gr 43.8, gor 2550/1, td 7553 ft.

Fort Bend County: North Thompson—Christensen & Matthews' Scanlan 1, 220 ft fr s l & 225 ft fr w l 100-ac lse Burnett sur, sand 7898 ft, flow 960 bbls ¼-in, tp 1125, cp 1300, gor 500/1, td 7921 ft.

Jefferson County: Stowell—Sinclair-Prairie's Gephart 1, 660 ft fr n & w lines sw 157, perf 8656-68 ft, flow 483 bbls ¼-in, gor 800/1, td 9528 ft.

Liberty County: Esperson—General Crude's Pure 1, 466 ft fr s & w lines 100-ac tr, GCSF 23, perf 9135-75 ft, flow 292 bbls ¼-in, tp 600, gr 33.7, gor 514/1, td 9495 ft.

Matagorda County: Wildcat—Eugene Jordan's Howard 2, 3 mi e Pledger, sec 14, abnd 2150 ft.

Matagorda County: Wildcat—R. H. Parker's Gottschalk 1, 6 mi ne Matagorda, Ira Ingram sur, abnd 4590 ft.

Pure's LeTulle 1, 3470 ft fr s l 10-ac tr George Wheelwright sur, abnd 4500 ft.

Wharton County: Withers—F. W. Michaux' Pierce Est. A-6, T. Westall sur, perf 5307-14 ft, flow 64 bbls 10/64-in, tp 200, cp 425, gor 250/1, td 5405 ft.

F. W. Michaux' Pierce Est. A-18, 933 ft n 62 deg e 16-A, T. Westall sur, perf 5360-64 ft, flow 174 bbls 10/64-in, tp 525, td 5378 ft.

F. W. Michaux' Pierce Est. A-23, 1203 ft fr se l of Westall sur, flow 143 bbls 10/64-in, tp 500, cp 675, td 5377 ft.

F. W. Michaux' Pierce Est. 63-A, 6920 ft n 28 deg w fr se l C. Howard sur, perf 5324-39 ft, flow 136 bbls 10/64-in, td 5379 ft.

F. W. Michaux' Pierce Est. 66-A, C. Howard sur, perf 5324-38 ft, flowed 156 bbls 10/64-in, tp 575, cp 600, td 5390 ft.

WILDCAT START

Polk County—Jordan Drilling Co.'s Munson, 1, 3261 ft fr most n'ly n l & 2325 ft fr most e'ly w l of 453-ac lse, A. Viesca Grant, lcn 8500 ft test.

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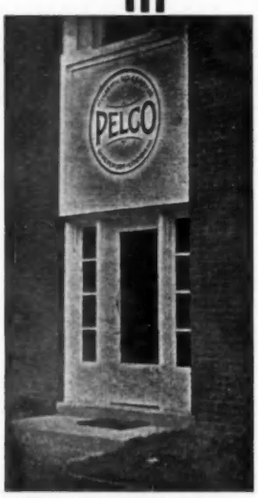

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New Sand Opened on Flank Port Barre

New sand opened on northeast flank Port Barre; new tests projected at Bay DeChene and Avery Island; fields have first blackout.

St. Landry Parish: Port Barre has been established as a multiple-sand area with William Helis completing Futral 2 on the northeast flank for 149 bbls through ⅛-in choke from perforations 6662-80 ft, tubing pressure 1050 pounds, casing 600 pounds. Pan American recently established production in the 6600-ft horizon on the southwest flank.

Bay DeChene: With The Texas Co. establishing the Bay DeChene area, Jefferson Parish, as productive, a confirmation test has been staked one mile west of the 7500-ft discovery in sec 29-9s-24e. The well is LaFourche Levee District 2-A. The discovery well is producing from perforations at 7470-7500 ft. Shallow gas production was opened in the area in 1941.

Avery Island: Humble has made location on the southwest flank Avery Island, Iberia Parish. This prospect, one of the large salt deposits in the coastal belt, has had several deep tests by Humble and Gulf. Humble's new test is Petit Anse 2, 400 ft southwest of Petit Anse 1 dry hole. Salt was found in the first well at 6044 ft.

COMPLETIONS

Avoyelles Parish: Wildcat—Placid Oil Co.'s Thompson & Katz 1, 4-2n-5e, abnd 7801 ft.

Cameron Parish: Wildcat—Union Sulphur's Hebert 1, se c sw 12-12s-9w, abnd 10,600 ft.

Cameron Parish: Chalkley—Shell's Hanszen 14, 330 ft n, 1650 w se cor 22-12s-6w, flow 292 bbls, 7/64-in, with 9 bbls salt water day, tp 2250, gor 850/1, td 10,092 ft.

Iberville Parish: Bayou Blue—Union Sulphur's Schwing 5, 768 ft s & 765 ft e nw cor se 67-9s-11e, perf 6585-90 ft, flow 157 bbls, 9/64-in, tp 1200, cp 1350, gor 566/1, td 6990 ft.

Jefferson Parish: Bay DeChene—Texas Co.'s LaFourche Basin Levee Dist 2-B, 3055 ft n, 1198 e nw c 31-19s-24e, sand 7470-7503 ft, perf 7470-7500 ft, flow 325 bbls 3/16-in, tp 1150, gor 330/1, td 9887 ft, new field.

LaFourche Parish: Raceland—Amerada's Moore 3, 34-15s-19e, perf 8225-32 ft, flow 191 bbls ⅛-in, tp 1400, gr 37.4, td 10,146 ft.

Plaquemines Parish: Stella—California's State 2-458, begin sw cor unit 100, go s 90 deg 30 mins w 168 ft, then n 59 deg 3 mins w 629 ft in 17-14s-12e, perf 7194-7204 ft, abnd 7230 ft.

St. Charles Parish: Paradis—Texas Co.'s Candies 1, 3295 ft s, 665 e nw c 7-14s-20e, perf 10,064-110 ft, flow 49 bbls dist, 1,500,000 gas, ¼-in, td 11,500 ft.

St. Landry Parish: Port Barre—William Helis' Futral 2, 7014 ft n 8 deg 28 mins e & 796 ft s 82 deg e fr sw cor 29-6s-5e, perf 6662-80 ft, flow 149 bbls, ⅛-in, 39.7 gr, tp 600, cp 1050, td 6894 ft, new sand.

St. Martin Parish: Anse la Butte—Glassell & Glassell's Moresi 4-D, 121-9s-5e, 186 bbls, 9/64-in, td 6156 ft.

St. Martin Parish: West Lake Verrette—Shell's Jeanerette 12, 2280 ft n, 29 mins w, thence 1760 ft n 89 deg 25 mins e fr sw cor 14-14s-12e, perf 7466-76 ft, flow 360 bbls, 14/64-in, tp 650, tp 550, gor 550/1, td 8889 ft.

St. Mary Parish: Bayou Sale—Humble's Gates 1, fr se cor sec 13, go 6802 ft nw'ly alg sw l & 240 ft ne'ly at ra in 13-16s-9e, abnd 11,646 ft.

WILDCAT STARTS

Iberia Parish—Humble's Petie Anse Co. 2, Avery Island, 2334 ft n & 1197 ft e of sw cor 25-13s-5e, lcn.

Vernon Parish—Shell's Louisiana Long Leaf 1, Hornbeck area, 660 ft fr s & w l, 15-7n-9w, lcn Wilcox test.

Arkansas

Midway Defined Three Ways; Drilling Slowing

The Midway field, LaFayette County, defined southwest, northwest and northeast by failures had only four tests drilling and one rigging last week, with no new locations. Latest completion, Barnsdall's Bond 4, SE SW 11-15-24, previously completed at 6436 ft flowing 31 bbls oil hourly, deepened four ft and flowing again into tanks.

Stephens: Haynes B. Ownby's J. W. Smart 1, NW SE 12-15-20, Columbia County, is standardizing with hole full oil at 3443 ft in Travis Peak, logged from 3434 ft to bottom.

WILDCAT START

Union County—Marine Oil Co.'s Frost 1, nw ne 13-18-12, rig (5900-ft test).

North Louisiana

Ninth Pettit Producer Completed at Haynesville

Ninth well for Pettit completed in Haynesville, Claiborne Parish. Field has 12 other tests drilling for this 5200-5300-ft horizon, two locations during week.

North Lisbon: Union Producing Co.'s McDonald 1, C SW 13-21n-5w, drilled to 12,592 ft and plugged back, has fishing job after casing parted 49 tribbles down in hole, after acidizing at 9500 ft. Test had swabbed muddy distillate before using 1500 gallons acid. Now blowing small amount of gas.

Catahoula Lake: Carter Oil Co. asked permit from war department to drill another test in Catahoula Lake, La Salle Parish, Catahoula Lake C-1, lo-

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10000'	48	5½"
10000'	15	5½"
9800'	40	5½"
9700'	106	5"

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cated 8580 ft N and 660 W SWc 8-6n-4e. Plans submitted show derricks, engine house and pipe rack platforms on pile foundations, piling to be 70 ft in length, driven to depth of 47 to 48 ft below lake bed.

COMPLETIONS

Bossier Parish: Sligo—Triangle Drlg. Co.'s Murff 4, ne ne 19-17n-11w, pump 60 bbls oil, 20 bbls water, td 3167 ft.

Caddo Parish: Dixie—D. C. Richardson's Tri-State 1, nw ne 27-19n-14w, elev 174 ft, abnd 2756 ft.

Claiborne Parish — Blackwell O&G Co.'s Sherman 1, sw ne 23-23n-8w, perf 5260-90 ft, 3500 gals acid, flow 25 bbls hour, ¼-in, td 5390 ft.

Catahoula Parish: Wildcat—Sinclair-Prairies' Tensas-Delta 3, nw se 10-8n-5e, abnd 6028 ft.

LaSalle Parish: Nebo—H. L. Hunt's Goodpine F-85, sw se 21-7n-3e, pump 92 bbls oil, 8 bbls water, 4103 ft.

H. L. Hunt's Goodpine F-86, sw sw 22-7n-3e, pump 176 bbls oil, 9 bbls water, 4269 ft.

Caroline Hunt's Kaufman 1, sw sw 2-7n-3e, pump 107 bbls oil, 3 bbls water, 4065 ft.

Placid's Deville 2, ne sw 38-7n-3e, pump 157 bbls oil, 8 bbls water, td 4057 ft.

LaSalle Parish: Little Creek—Placid's Radford 1, sw sw 24-9n-1e, abnd 2782 ft.

Red River Parish: Bull Bayou—C. L. Archer, Cockerham 1, ne ne 16-13n-11w, abnd 1595 ft.

WILDCAT START

Catahoula Parish—H. A. Harper et al's Graham Stave & Heading Co. 1, 1980 ft n & w sec 8-8n-7e, spd.

MISSISSIPPI

COMPLETIONS

Madison County: Sharpsburg-Pickens — Phillips Pet. Co.'s Whitworth 1, se nw 4-11n-3e, elev 212 ft, tops, Cane River 750, Tallahatta 920, Midway 3065, Selma 3914, Eutaw 4778, sand 4820, cored to 4860, bottom of oil section 4848, perf 4822-27 ft, flow 15 bbls hourly, 40/64-in, tp 120, cp 50, 8% bs & wash-water, td 4900 ft.

Yazoo County: Tinsley — E. C. Johnston, Martin 8, nw nw 1-9n-3w, elev 295, Selma 4777 ft, Woodruff 4844 ft, pump 250 bbls, td 4864 ft.

E. C. Johnston, Martin 11, c sw nw 1-9n-3w, elev 298, Selma 4801 ft, Woodruff 4885 ft, pump 275 bbls, td 4902 ft.

WILDCAT START

Issaquena County—Press Cochrane, Anderson-Tulley 1, c nw se 17-17n-3e, lcn.

Rocky Mountain Area

Cody Dome New Sand First Discovery of Year

New zone Cody Dome field, Wyoming. Sherard Dome wildcat plugging back for test of Lakota. To drill deep test Rattlesnake field, New Mexico.

Cody Dome: Husky Refining Co.'s Stump 2, SE SW SW 21-53n-101w, made first Rocky Mountain discovery of year, pumping 200 bbls daily Tensleep sand 4625-4795 ft, td; new producing zone.

Sherard Dome: Sinclair Wyoming's Carter 1, NE SW SW 31-25n-88w, Carbon County, Wyo., developed 150 bbls flowing water in Tensleep, topped 5047 ft, pb from td 5185 ft to test Lakota sand 2955-2960 ft where well showed gas. Also gas in Frontier 1752-1810 ft. Rotary table elevation 6510 ft.

Rattlesnake: Continental spotted Rattlesnake 107, C NE NE SW 13-29n-19w, deep test to Pennsylvanian 6700 ft plus, Rattlesnake field, San Juan County, New Mexico. Test quarter mile south of nearest shallow well in field. Located on seismograph high. Three deep tests previously drilled Rattlesnake, one a failure, other two nominal producers for depth, and since abandoned.

COLORADO

COMPLETION

Cheyenne County—O. E. Torrey's Whitson 1, nw nw se 12-13s-49w, rotary, Kit Carson area, abnd 4812 ft pb from 4819 ft.

MONTANA

COMPLETIONS

Glacier County—Frances Oil Co.'s Tribal 3, nw sw nw 30-32n-5w, cable, 155 bbls swabbing, 60 qts, Cut Bank 3000-3013 ft.

Kately Agent's Mattson 1, Lot 2, 15-34n-6w, cable, swabbing 145 bbls, 60 qts, Lower Cut Bank 2934-44 ft, td 2948 ft.

Glacier Production Co.'s Whetstone 4, c se nw 7-33n-5w, swabbing 90 bbls, shot 60 qts, Lower Cut Bank 2914-20 ft, td 2921 ft.

Texas Co.'s Miller 3, c sw se 29-33n-5w, swabbing 167 bbls, Lower Cut Bank 2945-55 ft, td 2957 ft.

WYOMING

COMPLETIONS

Park County—Husky Refining Co.'s Stump 2, se sw sw 21-53n-101w, new zone Cody Dome, pump 200 bbls after 245 qt shot, 4640-4780 ft, Tensleep, Embar 4390 ft, Tensleep 4625 ft, td 4795 ft.

Yale Petroleum Co.'s Atherly 1, sw sw sw 35-52n-100w, owd from 2785 ft to td 3588 ft, flow 720 bbls Embar lime 3534-3588 ft, after 1000 gals acid.

Weston County—Riggs Oil Co.'s Govt. 4, ne ne se 16-46n-64w, cable, Osage field, abnd 3545 ft.

California

Outpost Tests End As Failures

Two Kern County outposts fail to encounter pay; Orange County test picks up trace of oil; suspend operation on Ventura County test.

Kern County: Union has abandoned Glide 2-7, Section 7-27-28, outpost test in the northwest Mount Poso area, after bailing water and trace of oil and some sand from 45-ft interval above 2581 ft, total depth 2582 ft.

Northwestern edge of the Rio Bravo field appears to have been defined by Western Gulf Oil Co. in Jack 58-21, outpost in Sec. 21-28-25, bottomed in gray sand at 11,754 ft. After plugging to 4295 ft test on interval 4266 to top of plug recovered salt water with light to no blow. Top of Barren Rio Bravo was set at 11,639 ft and gray Vedder at 11,738 ft.

Orange County: Mud, water and a trace of oil was obtained on formation test of La Bolsa Rancho Syndicate's Crane 1, wildcat in Sec. 22-5-11, northwest Huntington Beach area. Test was made on perforated interval 6600 to 6750 ft., total depth 6956 ft.

Ventura County: Alphonso E. Bell Corp.'s Gilmore 1 wildcat, Sec. 23-9-33, Cat Canyon area, showed little oil or gas on swabbing test of interval 4930 ft. to bottom at 6457 ft. and has suspended.

COMPLETIONS

Kern County: Devil's Den—Continental's Mabury 2, sec 24-26-18, 880-885 ft, abnd 1309 ft.

Kern County: Greeley—General's Oughton 6, c 12-29-25, flow 720 bbls 38-gr, 1250/1350 lbs, 95 ft perf 11,498 ft, td 11,500 ft, Rio Bravo 11,409 ft, Vedder 11,460 ft.

Standard's KCL 11-32, 1659 ft s 2309, e nw c 18-29-26, flow 2240 bbls 35.8 gr, 26/64 bean, 1000/0 lbs, 161 ft perf 11,509 ft, td 11,510 ft.

Kern County: Mount Poso—Union's Glide 2-7, 400 ft n 1390 e sw c 7-27-28, Vedder 2565 ft, abnd 2582 ft.

Orange County: East Coyote—Union's Hole 23, 2161 ft s, 250 e nw cor 23-3-10, pump 120 bbls 20.2-gr, 538 ft perf 7008 ft, td 7194 ft.

Orange County: West Coyote—Standard's Murphy-Coyote 126, 778 ft n, 848 e s¼ cor 18-3-10, flow 1000 bbls 32-gr, 24/64 bean, 420/1180 lbs, 696 ft perf 6083 ft, td 6085 ft.

Sutter County: Marysville—Buttes Oilfields' Buttes 7, 1500 ft n, 2100 e sw cor 3-15-1, gas well, no test, shut-in, 325 ft perf 5247 ft, td 5250 ft.

Sutter County: Rio Vista—Amerada's Anderson 1, 1700 ft s, 2475 e sw cor 18-3-3, flow 1500 gas, 32/64-bean, 1300/1660 lbs, perf 4305-4320, 4335-4350 ft, td 4388 ft.

Ventura County: Cat Canyon—O. C. Field and Wm. C. McDuffie's Stendel 13-1, 330 ft s, 990 e w¼ cor 13-9-33, Miocene 2700 ft, abnd 3435 ft.

OLD WELLS RECONDITIONED

Kern County: Rio Bravo—Superior's Pasadena Realty 6, 1180 ft s, 1650 w ne cor 33-28-25, flow 1528 bbls 39-gr, ½-in bean, perf 11,377-11,390 ft, otd 11,471, pd 11,393 ft.

Los Angeles County: Wilmington—R. T. Colter's No. 1, 195 ft s, 101 w sw cor Denni &

Banning, pump 125 bbls 13.5-gr, plug depth 3606 ft otd 3646 ft.

Jergins Oil Co.'s No. 1, 125 ft, n 355 e Anaheim & Southland, pump 309 bbls 14 gr, 421 ft perf 3410 ft, otd 3448 ft.

Ventura County: Rincon—Chanslor-Canfield, Midway Oil Co.'s Hobson B-39, 693 ft s, 2422 e nw cor 16-3-24, pump 139 bbls 672 ft perf 5132 ft, otd 5115 ft.

WILDCAT STARTS

Fresno County—Richfield's Schults 1, 27-16-18, lcn.

Richfield's McDonald Estate 1, 32-16-16, lcn.

Kern County—Termo Co.'s Parker 1, 12-25-27, lcn.

Miesse & Emerich's No. 1, 22-24-17, lcn.

Michigan

Lower Monroe Producer Encourages Deep Drilling

First big producer in Lower Monroe lime will spur deeper drilling. Higher allowable, spacing exemptions and improved weather point to marked gain in drilling.

Arenac District: Ervin Major's Adams 1, NE NE NE 36-19n-3e, estimated potential between 600 and 900 bbls daily following 2000 gallons of acid in Lower Monroe lime (possibly top Sylvania) at 4207-4226 ft. First big producer for state in this horizon and expected to bring wide development through Adams-Gibson area and may affect deeper drilling on other known structures. Oil 40.2-gravity and posted at $1.42 or equal to Buckeye grade Dundee oil. This deep producer is a mile east of 1800- and 2900-foot Traverse and Dundee horizons in Adams field and is 3 miles southwest of Rayburn's Fox 1, Section 21-19n-3e, completed last year in same horizon for 21 bbls. A wildcat in Section 2-18n-3e had saturation in the same horizon.

Peacock: Gordon Oil Co. spudded Brazers 1, Section 8-19n-14w, half mile northwest of W. P. Shoemaker's Maston 1, Section 16, discovery in Lake County, but pool opener so far has not rated steady commercial production. Test flowed 400 bbls in 48 hrs natural originally but after setting casing and tubing has shown from 3 to 9 percent water and produced spasmodically from Traverse at 2114 ft.

Roscommon District: American Drilling Co.'s State M-1, N½ NW 4-20n-3w, Franklin Township, flowed 310 bbls natural from Traverse lime to extend Headquarters field half mile on southwest flank. However, field was confined on both west and north sides with tests that missed pay horizons in Traverse. Sun will carry State A-2, N½ SE SE 33-21n-3w, to Dundee, which has not produced in the field.

Wildcats: C. W. Cook's Trask 1, NW SW 34-2n-12w, Allegan County, after showing oil saturation in Traverse lime at 1492 ft, was deepened into water and abandoned.

Chartiers Oil Co.'s Anderson 1, SE NE SW 31-12n-3w, Gratiot County, logged Dundee 3726 ft, carried a free oil show at 3780 ft, and 700 ft water at 3289 ft. Pipe will be reset through water and test carried deeper.

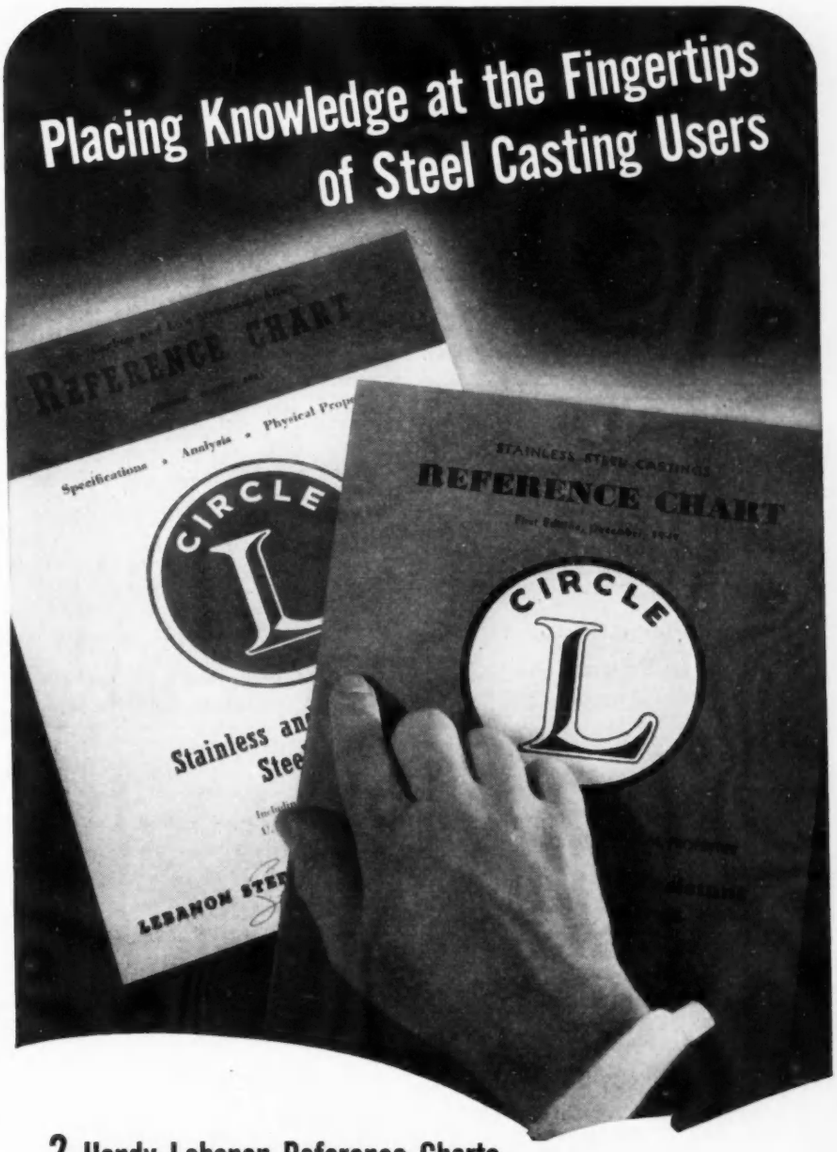
COMPLETIONS

Allegan County: Hopkins—Perry, Gould & Cross' Nicolai 1, nw ne ne 18-3n-12w, Traverse 1580-85 ft, pump 100 bbls after acid, td 1585 ft. Devonian Test & Lease Co.'s Zylma 1, ne ne nw 30-3n-12w, Traverse 1544-60 ft, abnd 1560 ft.

Allegan County: Wildcat—C. W. Cook's Trask 1, s½ nw sw 34-2n-12w, Traverse 1492 ft, abnd 1525 ft.

Arenac County: Adams—Ervin Major's Adams 1, ne ne ne 36-19n-3e, Dundee 2797 ft, Monroe 4190 ft, acid 2000 gals, 809 bbls, ¼-in, td 4226 ft, new horizon.

Clare County: Headquarters—American Drilling Co.'s State M1, n½ nw 4-20n-3w,



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Clare County: East Winterfield—Sun's State A3, s½ ne ne 1-19n-6w, Monroe 3797-3802 ft, 590 bbls 19 hrs after acid, td 3802 ft.

Clare County: West Winterfield — Cities Service's Phares 3, w½ se se 29-20n-6w, Monroe 3722-27 ft, flow 30 bbls 1st hr, 185 bbls 17 hrs, td 3727 ft. Pure's Snyder 1, w½ se ne 29-20n-6w, Monroe 3752-57 ft, flow 248 bbls 17 hrs after acid, td 3757 ft.

Kent County: Wildcat — Perry, Gould & Cross' Anderson 1, s½ ne se 4-5n-12w, Traverse 1816 ft, abnd 1845 ft. Gordon Oil Co.'s Cook 1, se ne se 1-7n-11w, Traverse 2094 ft, abnd 2105 ft.

Mecosta County: Wildcat — Turner Pet. Corp.'s State R1, w½ se nw 11-16n-7w, Monroe 3842 ft, abnd 4000 ft.

Oceana County: Wildcat — C. W. Teater's Skidmore 1, nw se sw 9-16n-16w, Traverse 1836 ft, Dundee 2390 ft, abnd 2400 ft.

Osceola County: Reed City—Ohio's Gabel 3, n½ se sw 31-18n-10w, Monroe 3595-3632 ft, pump 98 bbls after acid, td 3632 ft. Ohio's Jewett 3, n½ se sw 32-18n-10w, Monroe lime 3505-41 ft, flow 287 bbls 1st hr, td 3541 ft.

Roscommon County: Headquarters—Ohio's State A4, n½ se se 33-21n-3w, Traverse 3231-3351 ft, flow 91 bbls 1st hr, td 3351 ft.

Van Buren County: Bangor—M. B. Keeler's Burnsworth 1, nw ne 15-2s-16w, Traverse 1052 ft, abnd 1057 ft.

Van Buren County: Bloomingdale—Clapsaddle & Harris' Hayes 1, ne se nw 10-1s-14w, Traverse 1264-96 ft, pump and flow 98 bbls after acid, td 1296 ft.

WILDCAT STARTS

Allegan County—H. C. William's Simmons 1, nw sw nw 22-2n-13w, rig. Rex Oil & Gas Co.'s Hamlin 1, nw se 4-1n-16w, dr.

Hillsdale County—Goodheart & Sindecuse's Salway 1, sw sw sw 5-6s-3w, lcn.

Lake County—E. L. Bennight's Lee 1, n½ sw sw 5-17n-11w, rig.

Eastern States

OHIO

COMPLETIONS

Ashland County—Konrad & Sons, Hines 2, abnd 704 ft.

Cuyahoga County—Hayjack et al, Schramm 1, abnd 3100 ft.

Gallia County—Portage Producers, Cambria Clay Prod. Co., 5.0 gas, 2988 ft.

Lawrence County—Petri & Nooman, Dienfee 1, 0.26 gas, 2846 ft.

Licking County—C. A. Davis, Kennedy 1, 0.1 gas, 2487 ft.

Lorain County — Ohio Fuel Co., Kundtz Properties 1, 0.2 gas, 2637 ft.

Medina County—Belmont Quadrangle, Metropolitan Park Board 1, abnd 3643 ft.

Meigs County—Guy Swadley, Fee 1, abnd 875 ft.

Monroe County—W. P. Gardner et al, Wilson 3, 2¼ bbls, 1456 ft.

Lebanon Drlg. Co., McCurdy 3, 0.1 gas, 1651 ft.

Kovert et al, Bach 1, 0.06 gas, 1752 ft.

Muskingum County—Ohio Fuel, Burwell 1, 0.55 gas, 4053 ft.

Perry County — Preston Oil Co., Sunday Creek 1829, abnd 3438 ft.

C. Z. Ruth, West Coal Co. 22, abnd 1118 ft.

Washington County—Campbell et al, Norman 3, 0.37 gas, 1484 ft.

OLD WELL DRILLED DEEPER

Athens County—C. W. Nuzum, Bailes 1, 0.5 gas, 1134 ft.

PENNSYLVANIA

COMPLETIONS

Armstrong County—T. W. Phillips Gas & Oil Co., Myers 1, 0.02 gas, 3558 ft.

Clarion County—Hanley & Bird, Silvis 1, dry, 3348 ft.

Washington County—Geo. Graham et al, Buckingham 1, 0.48 gas, 794 ft.

OLD WELL DRILLED DEEPER

Greene County — Kiski Valley Gas Co., Householder 1, 0.18 gas, deepened 1945 to 3700 ft.

WEST VIRGINIA

COMPLETIONS

Braxton County—So. Penn Nat. Gas Co., Baker 3, 0.3 gas, 2090 ft.

Calhoun County—A. A. Haught, Dye 1, 0.24 gas, 1952 ft.

Gilmer County—Pitts. & W. Va. Gas Co., Radcliff 7845 ft, abnd 1833 ft.

Jackson County—Mullins Gas Co., McVee 1, 3.8 gas, 5073 ft.

Columbian Carbon Co., Patterson 1, 5.74 gas, 5178 ft.

Joe Rubin et al, Morrison 1, 0.11 gas, 4715 ft.

Carnegie et al, Cabot Inc. 1, 14.93 gas, 4996 ft.

Lincoln County—Brawley Reid O. & G. Co., Horse Creek L. & M. Co., 0.41 gas, 3780 ft.

Monongalia County—Mfgrs Lt. & Heat Co., Shriver 1, 0.37 gas, 3740 ft.

Taylor County—Pitts & W. Va. Gas Co., Abel 6125, abnd 3727 ft.

Wood County—So. Penn. Nat. Gas Co., Bigelow 1, 1.0 gas, 1350 ft.

NEW YORK

COMPLETIONS

Allegany County—South Bolivar Oil Co., McKelvey farm, Bolivar, 6 bbls, Richburg, 1411 ft.

New York Oil Co., Brown farm, Bolivar, 7 bbls, Waugh-Porter, 1366 ft.

MacDonell Oil Co., MacDonell farm, Bolivar, 6 bbls, Richburg, 1288 ft.

V. V. V. Franchot, Emerson farm, Scio, 5 bbls, Richburg, 1160 ft.

Porge Oil Co., Anderson farm, Alma, 7 bbls, Richburg, 1367 ft.

Hardy & McBride, Garthwaite farm, Alma 8 bbls, Richburg, 1278 ft.

McEnroe & Brown, Barnes farm 2, Alma, 6 bbls, Richburg, 1119 ft.

Trio Oil Co., Wetherby farm, Bolivar, 8 bbls, Richburg, 1377 ft.

South Hill Oil Co., Harrington farm, Wellsville, 6 bbls, Fulmer, 1353 ft.

Messer Oil Co., Koehler farm, Clarksville, 8 bbls, Richburg, 1349 ft.

Forest Oil Co., Lester lot, Wirt, 9 bbls, Richburg, 1327 ft.

A. C. Shaner Oil Co., Congdon farm, Clarksville, 7 bbls, Clarksville, 1089 ft.

INTAKE WELLS

Allegany County—Messer Oil Co., Vosburgh farm, Bolivar, Richburg, 1368 ft.

Bradley Prod. Corp., Sprague farm, Alma, Richburg, 1260 ft.

Angie Tullar, Mix farm, Bolivar, Richburg, 1521 ft.

Producers Oil Co., Keller-Scott farm, Wirt, Richburg, 1069 ft.

Bradley Prod. Corp., Rolls farm, Alma, Richburg, 1223 ft.

Otsquago Corp., Pike farm, Alma, Richburg, 1392 ft.

Bradley Prod. Corp., Fitz-Carroll farm, Bolivar, Richburg, 1382 ft.

McEbenwood Oil Co., McAndrews farm, Andover, Penny, 1322 ft.

Howare Gowdy et al, Frederick farm, Alma, Fords Brook, 1362 ft.

Messer Oil Co., Beaver-Horn farm, Wellsville, Scio, 915 ft.

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Men in the Industry's News

M. C. LEVERETT, Humble Oil & Refining Company, will be guest lecturer at the Petroleum Engineering Conference, University of Oklahoma, Norman, April 10.

Leverett, who received his M. S. in engineering in 1932, will present information concerning "Reservoir Performance," which will be the first time he has presented this information on his recent research in connection with estimating reserves in gas expansion reservoirs.

Leverett will be honored at an informal dinner April 10 in the University's Union building.

JOHN W. BRICE was elected vice president and director of The Carter Oil Company at a board meeting March 27. He will be in charge of exploration, research and the manufacture of specialized equipment. At the same meeting, H. F. Moses was elected a director. Moses has been with the company a number of years, having become manager of the exploration department on May 1, 1941. He will continue as chief geologist and manager of exploration.

Brice was first employed as a geologist with Humble Oil & Refining Company in 1927. After three years he joined Standard Oil Company of Venezuela as chief geologist, a position he held until he was transferred to the New York office of the Standard Oil Company of New Jersey, to handle producing matters. For the past three years he has been executive vice president and assistant manager of Standard Oil Company of Venezuela.

P. L. BROOKS, formerly Pacific Coast manager for The Parkersburg Rig & Reel Company, has been transferred from the Los Angeles office to company headquarters at Parkersburg, West Virginia, and promoted to manager of industrial sales. C. F. Strover of the Los Angeles office has been named acting Pacific Coast manager.

DR. O. F. EVANS, associate professor of geology, Oklahoma University, gave a paper, "The Origin of Beach Structures," before the Shawnee Geological Society at the March meeting.

J. J. ARPS, district engineer for The British-American Oil Producing Company, has been appointed production superintendent for the company's Gulf Coast district with headquarters in Houston.

C. J. WILHELM, engineer at the Bureau of Mines, Bartlesville, is going to Franklin, Pa., where he will direct a new experimental station.

LEVI ACKLEY, Tulsa producer, is heading the Oklahoma State campaign for scrap, directing the activities of the committee headed by E. H. Moore.

E. FLOYD MILLER, geologist for Oliphant Oil Corporation, has moved from Shreveport to San Antonio.

JOHN V. BOYCE and Jerome S. Smiser, consulting engineers and geologists, have opened offices in the Commerce building, Houston.

W. N. FINNEGAN, JR., has rejoined Humble Oil & Refining Company, Houston, in the production department. He will handle press relations as formerly.

RAY L. DUDLEY, president of Gulf Publishing Company, addressed the Oil Well Supply Group of Houston Association of Credit Men on March 2.

J. B. BRANDT, The Texas Company scout in South Louisiana, has resigned and joined Petersen Petroleum Company, New Orleans, as chief scout and land man.

A. L. VITTER, JR., senior petroleum engineer with the Minerals Division of the Louisiana Department of Conservation, has been granted a leave of absence to teach electronics at Harvard University.

SIDNEY LATHAM, Longview, Texas, attorney, has been placed in charge of the legal department of Hunt Oil Company, with headquarters at Dallas.

HARRY C. WIESS, president of Humble Oil & Refining Company, Houston, and **W. M. GRIFFITH,** vice president of Plymouth Oil Company, Sinton, will be the guests of honor at the fifth annual South Texas oil men's meeting in San Antonio April 17 under the sponsorship of the South Texas Chamber of Commerce.

Committees to serve are as follows: Al Buchanan, F. M. Frasher, Edwin M. Jones, Fred A. Shield, Walter Henshaw, Arthur A. Seeligson, Henderson Coquat, Rodney Delange, all of San Antonio; George A. Hill, Jr., J. S. Leach and R. C. Gwilliam, Houston; O. W. Killam, Laredo; J. M. Pickering, Victoria; Harry J. Mosser, Alice; Guy I. Warren and Herman Heep, Corpus Christi; L. W. Dirks, Tuleta, all on the arrangements committee.

Marrs McLean, San Antonio; George D. Wilson, John A. Bartlett, Corpus Christi; George M. Luhn, Frank Gravis, San Antonio; A. E. York, Victoria, reception.

John J. O'Hern, Laredo; K. D. Harrison and George H. Coates, San Antonio; George H. Echols, Houston; Tom Graham, Corpus Christi, golf.

Frank B. Lefevre, J. V. Rowan, Ernest B. Rubsamen, Jack V. Rowan, Jack Rayzor, San Antonio; H. J. Porter, Houston; Walter Taber, Corpus Christi, entertainment.

M. E. BROCK of the Gulf Oil Corporation, Houston, has been appointed chairman of the 1942 Advisory Committee on Disposal of Production Wastes of the American Petroleum Institute's Division of Production. The committee, whose functions will be of an advisory and consulting nature only, replaces the former Committee on Disposal of Production Wastes. C. A. Young of the Institute is secretary.

Members of the committee, which was appointed by George A. Hill, Jr., chairman of the division's general committee, are: T. L. Fontaine, Humble Oil & Refining Company, Houston; Kurt H. de Cousser, Socony-Vacuum Oil Company,

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Inc., Lansing, Mich.; D. B. Dow, Indian Territory Illuminating Oil Company, Bartlesville, Oklahoma; R. B. Kelly, The Pure Oil Company, Olney, Illinois; A. S. Ritchie, McPherson Drilling Company, Wichita, Kansas, and J. Samuelson, General Petroleum Corporation of California, Los Angeles.

R. S. HUFFMAN, safety engineer, Oklahoma Natural Gas Company, Tulsa, was first prize winner at a "quiz" program by Petroleum Safety Council.

A. E. CROCKETT, Jones and Laughlin Steel Corporation, discussed Steel in War before the Purchasing Agents Association of Tulsa.

HUMBLE OIL & REFINING COMPANY'S production department recently announced eight changes in its supervisory forces:

W. T. RADFORD, assistant district superintendent, was transferred from Sand Hills district to Hurdle district, West Texas.

WILLIAM T. ILFREY, office petroleum engineer, was appointed district petroleum engineer at North Crowley.

J. VERNON BLACKLOCK, assistant chief clerk in the Galveston Bay district, was transferred to Chalkley as chief clerk.

JESSE E. LAWRENCE, transportation foreman in Galveston Bay district, was appointed division transportation foreman in the Louisiana division.

GEORGE M. CHAFFEE, farm boss, was transferred from the Galveston Bay to the Chalkley as district superintendent in charge of operations.

J. I. COCHRAN, district superintendent, was transferred from Chalkley district to Paradis in Louisiana.

R. A. WILLIAMS, chief clerk, was transferred from Chalkley to Paradis.

E. C. McCANLIES, district chief clerk, was transferred from Heyser gasoline plant to Katy gas cycling plant.

Squeaks from the Bull Wheel

SITuation Explained

Note received by a Chicago schoolteacher from a parent:

"Dear Teacher: Please excuse Evelyn, for she has a boil on her sit where she sets and she can't set—she has to lay.—Her Mother."

What to Do?

The boat had just left Portland when a stowaway was discovered. The captain ordered her sent to his cabin.

"I don't know what to do with you, I'm sure," he said as he questioned her.

"Say, skipper," she said finally, "how long have you been a sailor?"

Still the Small Voice

"I've been misbehaving and my conscience is bothering me."

"I see, and since I'm a psychiatrist you want something to strengthen your will power?"

"No, something to weaken my conscience."

Life of Ease

"I just adore lying in bed of a morning and ringing my bell for my valet."

"My goodness, have you a valet?"

"No, but I have a bell."

Slight Difference

"I hear you are going west, this summer to start a chicken farm?"

"No, just to Reno to trade roosters!"

Office Argument

"Robert, I could swear I heard Miss Keyes shout out, 'Let me go,' as I came up the stairs."

"Yes, dear, I was-er-just saying that someone would have to go to the bank."

Slow Down

"Wine, women and song are killing you."

"O. K., doctor, I'll never sing again as long as I live."

The Salt of the Earth

"What are seasoned troops?"

"Oh, they are mustered by the sergeant and peppered by the enemy."

Direct Information

An old English charwoman, whose pride in her soldier son was very great, appeared at her place of employment one morning and, with deep emotion, announced to her co-workers that her boy was dead.

"How do you know?" she was asked. "Did you hear from the War Office?"

"No," was the reply. "I heard the news from my boy himself."

"From the boy himself?" her astonished friends exclaimed. "How on earth could you do that?"

"Here's the letter," she sobbed, taking a crumpled sheet from her pocketbook. "It says, 'Dear Mother: I am now in Holy Land.'"

Proving It

"Does your husband always live up to his promise of his courtship days?"

"Always. In those days he said he was not good enough for me, and he has been proving it ever since."

Making Allowances

After a long march, during which the supply of water had been exhausted, a platoon of soldiers sat beside a dried-up spring, heads in hands as a bitter midday sun beat down. One of the men, seemingly more morose than the rest, was approached by a non-com who wanted to know how come.

The man addressed pointed to his parched lips and swollen tongue.

"What if you are thirsty," bawled the sergeant. "So are the rest of us. What in the——"

"Wait a minute, Sarg," another soldier spoke up. "It's worse for him than the rest of us. His old man owns three saloons."

Surprised

"Listen, Honey," he said. "I want to—er—that is—I—would you—would you marry me?"

"Sure," she rejoined. "For a minute there you had me worried—I thought you wanted to borrow money."

Success Story

Have you ever noticed that most successful men are bald?

Naturally, they come out on top!

Decision Reserved

"Was your uncle sensible until the last?"

"I won't know until his will is read tomorrow."

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KEEP PURE DRINKING WATER ALWAYS HANDY

Notes for the Equipment Buyer and User

Shock Absorber

L. AND M. RUBBER PRODUCTS, INC.

L. and M. Rubber Products, Inc., 2375 Lewis Avenue, Long Beach, California, has announced a new practical method of equalizing V-belt tension through the use of the V-belt.

The V-belt rubber shock absorber contributes much to the efficiency and durability of V-belts and pulleys, due to the fact that it supports the belts and forces them to ride the pulley grooves in the proper place. They are molded of special high grade rubber for long life, and shaped to fit the bottom of the pulley groove, acting as a cushion on which the belt seats. The absorber is applicable to everything that is V-belt driven.

Unit Pumps

Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin, has issued a 36-page compilation on SS Unit pumps and the Electrifugal.

Head capacity tables and dimension charts make it easy to select proper pumps for individual applications. Performance data and engineering recommendations also part of the bulletin, are additional aids in the selection of units for pumping more gallons at less cost. Cross sections and construction details help to illustrate this complete pump line.

The compact, efficient motor-pump units and base-mounted units described are built in a wide range of sizes for capacities from 10 to 2750 gallons per minute and for heads up to 575 feet. They have an unusually wide application, many of these varied applications being illustrated in this bulletin, B6018-B.

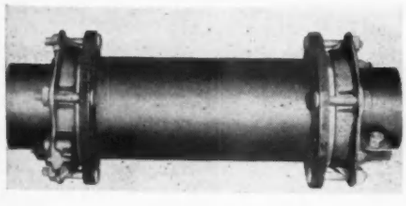
Bomb Crater Clamp

M. B. SKINNER COMPANY

M. B. Skinner Company, South Bend, Indiana, has announced development of a new clamp, the Skinner-Seal Bomb Crater Clamp, for use in repairing gas and water mains where a gap has been blown out by an explosion.

Developed at the request of a West Coast gas company, the new adapter makes use of standard Skinner-seal bell joint clamp parts to splice a proper length of steel pipe to fill in the gap in broken main, with minimum delay. Connection is made between main and steel pipe at each end of gap. Flanges, welded to center tube, act as anchor rings for bolts.

Of interest, also, in connection with air raid precautions, the Skinner-seal split coupling clamp quickly repairs breaks in the main which are apt to occur for some distance on each side of the bomb crater.



Bomb Crater Clamp

Turret Lathe

South Bend Lathe Works, South Bend, Indiana, has issued Bulletin 67-T describing the new South Bend No. 2-H Turret Lathe. The new lathe is said to be adaptable to either long or small lot production on a wide range of bar, chucking or fixture jobs. It has a capacity of 1⅜-inch through the spindle hole, 16-inch swing over the bed and saddle wings and 1-inch through the collet.

Boiler Controllers

J. A. Campbell Company, 651 Wardlow Road, Long Beach, California, has issued a new bulletin on boiler-feedwater-level controllers, designed on the cantilever principle.

Two improved types of controllers are presented — pilot-operated and rotary types. Adoption of the cantilever principle multiplies expansion and contraction in the tube by six, which permits wide range of movement for valve motivation and makes possible the use of a much smaller valve, according to the manufacturer.

The bulletin also describes other recently introduced products of the com-

Fifteen of the new fleet of 43 tank trucks, each of 4000 gallons capacity, of the recently organized Texas Consolidated Transportation Company with headquarters at Kerrville, Texas. Organized for the purpose of transporting gasoline and other petroleum products anywhere in Texas, Louisiana and Oklahoma, the new company is headed by Hal Peterson, owner of Kerrville Bus Lines. Railroad Commission permits have been obtained and the new organization expects to play a large part in relieving the transportation problem now facing the oil industry. Branch offices will be maintained in Houston and San Antonio.

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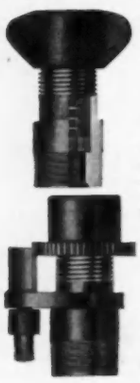

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pany, including the Campbell Micro-Bean, which is a universal pulsation dampener for eliminating vibration of gauge needles and provides sensitive valving to pump governors; thermometer wells made of stainless steel; gas samplers; and feet gauge strips. The latter are cast in 12-inch lengths for mounting on a surface board to be fastened to tanks. The numerals can be arranged to read up or down.

Letters to the Editors

CIO and The Oil Industry

DEAR SIRS:

We want to congratulate you on your very fine and timely statement in THE OIL WEEKLY, on "CIO and the Oil Industry," and upon your courage to publish such an article at this time. Thank God there are still some men with enough red blood in their system to speak up and do their best in a reasonable manner to try to save America some of the fine heritage our sturdy ancestors gave us, who built this country, in which an individual may have a chance to advance and benefit by his own hard work and efforts—something which is either not possible, or is inevitably greatly curtailed—when all men are fitted into "machine molds" by arbitrary laws, rulings, or organized pressure-group demands.

It seems to us that the one thing, above all others, which has made the remarkable advance possible—which we have witnessed in America—was the fact that the individual citizen has not only a right to express his own thoughts and feelings, but has a right to act on his own best judgment, and can profit by his own initiative and hard work. If one man has more energy and desire to advance than another, it is our firm belief that he has, under our American way of life, an inherent right to go and come as he may choose; to work at what and for whom he may elect; and that no other man or group of men have any reasonable right to prevent his so exercising these fundamental rights of a free man; or to compel him to pay tribute to some organized band or group, who may try to chisel money and rights away from him—to reach some arbitrary objective of their choosing, not his.

We have no objection to any type of fair organization, which men may, of their own free will, and in line with the freedom and fairness to others, see fit to institute or join. But when the matter of coercion and force enters in—Americanism right there goes out, and communism and un-Americanism enters the picture! That is the fundamental wrong in the closed shop! We can never retain a free America for free men, and permit any group, whether financial, labor or political to coerce other citizens, legally, in curtailment of their reasonable, fundamental rights to act as free men, either in religion, politics, or a chance to work when and as they may choose, free from all high-jacking, chiseling, and coercive methods, no matter under what "front." Time will prove that we are right in this statement of facts! . . .

HAROLD J. COOK.

Consulting Geologist,
Agate, Nebraska

Advertisers' Index

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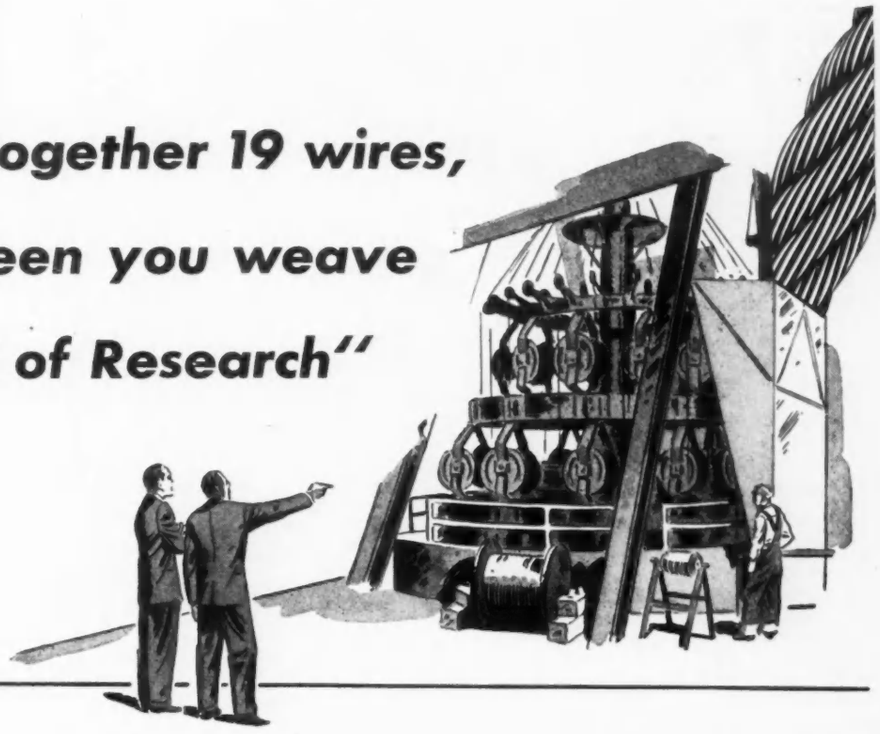

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Thus the strong but invisible thread of Research is woven into every inch of Roebling "Blue Center" Steel Wire Rope. Giving it the extra stamina to meet the unusual load as well as the routine one . . . to give extra service where extra service is called for. Bringing it to the high standards it must pass, to carry the Roebling Trademark . . ."

Roebling Research, Roebling Engineering, Roebling Plant Facilities and broad Experience . . . each adds its part to the extra values in Roebling "Blue Center" Rope. Each helps it meet conditions unfailingly, wherever wire rope has a routine or unusual job to do.

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LOOKING AHEAD

. . . with the Editor

Nation's Oil Prospecting Trend of Importance

With the nation at war, the discovery of new oil-producing sources is a matter of vital concern to all. The trend of prospecting efforts becomes of great importance in modern warfare. Therefore more than the usual amount of interest is attached to the annual meetings of the American Association of Petroleum Geologists, the Society of Exploration Geophysicists and the Society of Economic Paleontologists and Mineralogists. These meetings offer opportunity for a thorough cooperative study of the conditions war has imposed upon the industry, and by a concerted effort necessary adjustment of the industry's scientific and technical programs may be developed.

As a prelude to these important conventions, the forthcoming issue of THE OIL WEEKLY will publish several articles of special interest from the prospecting phase.

One of the articles will be the annual wildcat activity report of Dr. Frederic H. Lahee, which in recent years has developed into one of the industry's major statistical studies. From data presented in this interesting report, the industry can compare and judge its efficiency in the finding of new sources as well as the trend of exploratory drilling activity. The trend of geophysical activity is another important indice to prospecting efforts, and Dr. E. A. Eckhardt will bring up to date his study of this work in another article.

Several other articles on geological work will be published in the issue, including one on the necessity of altering our views on prospecting technique because of the war and another on the development of fluoresceine as a geological tool.

★ KEEP 'EM PRODUCING ★

THE OIL WEEKLY. Published every Monday. Entered as second class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.